SUPER® C2SBM-Q

USER'S MANUAL

Revision 1.1

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Manual Revision 1.1

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Preface

About This Manual

This manual is written for system integrators, PC technician and knowledgeable PC users. It provides information for the installation and use of the SUPER® C2SBM-Q motherboard. The C2SBM-Q supports a single Core 2 Duo/Core 2 Quad processor with a system bus speed of 1333/1066/800 MHz. The Intel Core 2 Duo/Core 2 Quad processor supports the 775-Land Grid Array Package that interfaces with the motherboard via an LGA775 socket. With support of the Dual-Core Technology, the Intel Hyper-Threading (HT) Technology, Wide Dynamic Execution, FSB Dynamic Bus Inversion (DBI), Advanced Digital Media Boost, Smart Memory Access, and Thermal Management 2 (TM2), the C2SBM-Q delivers unparalleled system performance and great power efficiency in a slim package. Please refer to the motherboard specifications pages on our web site (http://www.supermicro.com/Products/) for updates on supported processors. This product is intended to be professionally installed and serviced by a technician.

Manual Organization

Chapter 1 describes the features, specifications and performance of the mainboard and provides detailed information about the chipset.

Chapter 2 provides hardware installation instructions. Read this chapter when installing the processor, memory modules and other hardware components into the system.

If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for the video, the memory and the system setup stored in CMOS.

Chapter 4 includes an introduction to BIOS and provides detailed information on running the CMOS Setup utility.

Appendix A provides BIOS POST Messages.

Appendix B lists BIOS POST Codes.

Appendix C provides software installation instructions.

Conventions Used in the Manual:

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury to yourself:

Warning: Important information given to ensure proper system installation, to prevent bodily injury or damage to the components.

Note: Additional Information given to differentiate various models or to ensure correct system setup.

Table of Contents

About This Manual iii
Manual Organization iii
Conventions Used in the Manual iii

Chapter 1: Introduction

1-1 Overview 1-1
Checklist 1-1
Contacting Supermicro 1-2
SUPERMICRO C2SBM-Q Image 1-3
SUPERMICRO C2SBM-Q Layout 1-4
SUPERMICRO C2SBM-Q Quick Reference 1-5
Motherboard Features 1-6
Intel Q35 Chipset: System Block Diagram 1-8
1-2 Chipset Overview 1-9
1-3 Recovery from AC Power Loss 1-10
1-4 PC Health Monitoring 1-10
1-5 ACPI Features 1-10
1-6 Power Supply 1-11
1-7 Versatile Media Capabilities 1-12
1-8 Super I/O 1-12

Chapter 2: Installation

2-1 Static-Sensitive Devices 2-1
2-2 Motherboard Installation 2-1
2-3 Processor and Heatsink Installation 2-2
2-4 Installing DIMMS 2-6
2-5 Control Panel Connectors/IO Ports 2-8
1. Back Panel Connectors/IO Ports 2-8
2. Front Control Panel 2-9
3. Front Control Panel Pin Definitions 2-10
PWR LED 2-10
HDD LED 2-10
NIC1 LED Indicators 2-11
OH/Fan Fail LED 2-11
Reset Button 2-12
PWR Button 2-12
2-6 Connecting Cables 2-13
ATX/Auxiliary Power Connectors 2-13
Universal Serial Bus (USB) 2-14

Chassis Intrusion 2-14
Fan Headers 2-15
VGA Connector 2-15
ATX PS/2 Keyboard and PS/2 Mouse Ports 2-16
Serial Ports 2-16
Wake-On-Ring 2-17
Wake-On-LAN 2-17
GLAN1 Port 2-18
Speaker Connector 2-18
High Definition Audio (HDA) 2-19
CD Header/Auxiliary Audio Header 2-19
Front Panel Audio Control 2-20
Power LED 2-20
2-7 Jumper Settings 2-21
Explanation of Jumpers 2-21
GLAN Enable/Disable 2-21
Audio Enable 2-22
Watch Dog Enable 2-22
CPU Front Side Speed 2-23
PCI/PCI-Exp. Slots to SMB Speeds 2-23
IDE Enable/Disable 2-24
USB Wake-up 2-25
2-8 Onboard Indicators 2-26
GLAN LED Indicators 2-26
Onboard Power LED 2-27
2-9 IDE Hard Drive Connections 2-28
IDE Connector 2-28

Chapter 3: Troubleshooting

3-1 Troubleshooting Procedures 3-1
Before Power On 3-1
No Power 3-1
No Video 3-1
Memory Errors 3-2
Losing the System's Setup Configuration 3-2
3-2 Technical Support Procedures 3-2
3-3 Frequently Asked Questions 3-3

3-4 Returning Merchandise for Service 3-4

Chapter 4: BIOS

4-1 Introduction 4-1
4-2 Running Setup 4-2
4-3 Main BIOS Setup 4-2
4-4 Advanced Setup 4-7
4-5 Security Setup 4-19
4-6 TPM State 4-21
4-7 Boot Settings 4-22
4-8 Exit 4-23

Appendices:

Appendix A: BIOS POST Messages A-1
Appendix B: BIOS POST Codes B-1
Appendix C: Software Installation Instructions C-1

Chapter 1

Introduction

1-1 Overview

Checklist

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance.

Please check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

All of the following items are included in the Retail Box Only:

One (1) Supermicro Mainboard

Four (4) SATA cables (CBL-0044L)

One (1) IDE hard drive cable (CBL-0036L-3)

One (1) I/O Shield (MCP-260-00015-ON)

One (1) Supermicro CD containing drivers and utilities

One (1) User's/BIOS Manual

Contacting Supermicro

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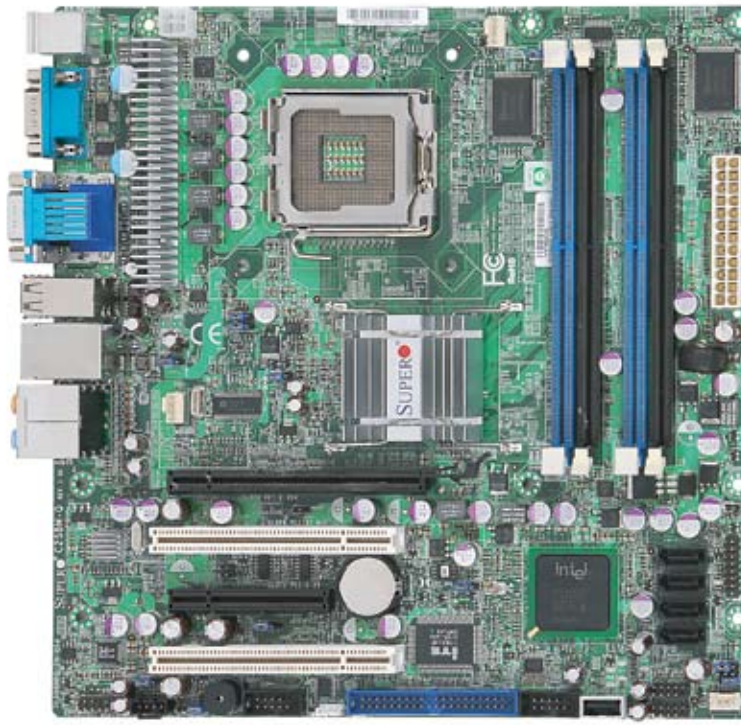
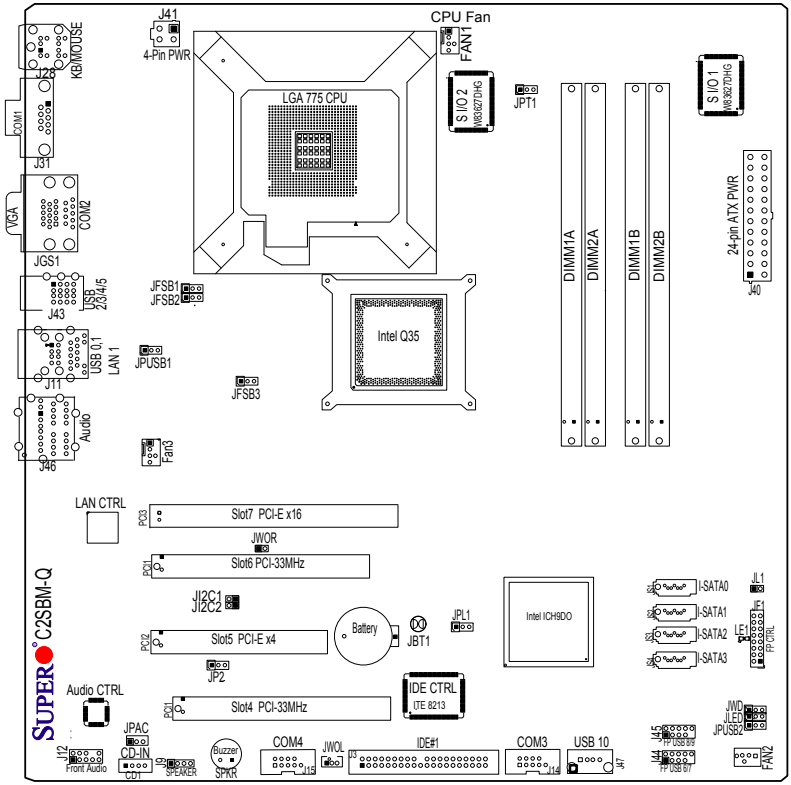
SUPER® C2SBM-Q Image



Note: All pictures and drawings shown in this manual were based upon the latest PCB Revision available at the time of publishing of the manual. The motherboard you've received may or may not look exactly the same as those in this manual.

Motherboard Layout



Important Notes to the User

- Jumpers not indicated are for test purposes only.
- See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.
- "■" indicates the location of "Pin 1.'

Overclocking Considerations

Warning: *Please be aware of the following conditions when "overclocking" is used:* Setting a high CPU FSB speed (overclocking), DRAM frequency or selecting a high CPU V-Core voltage, memory voltage, chipset voltage, ICH chipset voltage, or FSB termination voltage may result in system instability. If this occurs, revert to the default settings. In addition, extra fans may be needed for proper system cooling. The C2SBM-Q offers the option of "overclocking" however, Supermicro is not responsible for any damage caused by the use of overclocking.

C2SBM-Q Quick Reference

Jumpers	Description	Default Setting
JBT1	CMOS Clear	(See Chapter 2)
JFSB1/JFSB2/JFSB3	Front Side Bus Frequency	All Pins 1-2 (Auto)
JI²C1/JI²C2	SMB to PCI Slots	Open/Open (Disabled)
JPAC	Audio Enable	Pins 1-2 (Enabled)
JPL1	Giga-bit LAN Enable	Pins 1-2 (Enabled)
JPT1	Trusted Platform Module Enable	Pins 1-2 (Enabled)
JPUSB1	USB Wake-up Enable	Pins 1-2 (Enabled)
JPUSB2	USB Wake-up Disable	Pins 2-3 (Disabled)
JP2	IDE Device Enable	Pins 1-2 (Enabled)
JWD	Watch Dog Timer Out	Pins 1-2 (Reset)

Connectors	Description
ATX PWR	ATX 24-Pin Power Connector
CD1	Audio CD Input Header
COM1-4	COM Port/Serial Port 1-4 Connectors
DIMM 1A, 2A, 1B, 2B	Memory Slots
Fans 1-3	Fan 1: CPU Fan, Fan 2/3: Chassis Fan Headers
IDE	IDE # 1 Connector
JF1	FP Control Panel Header
JL1	Chassis Intrusion Header
JLED	Onboard Power LED Indicator
JWOL	Wake-on-LAN Header
JWOR	Wake-on-Ring Header
J9	Buzzer/Speaker (Pins 3-4 Internal Buzzer, Pins 1-4 External Speaker)
J12	Front Panel Audio Connector
J28	PS/2 Keyboard/Mouse
J41	12V 4-Pin Power Connector
J46	Audio Port
LAN	Ethernet (Gigabit LAN) Connector
LE1	Standby Power LED Indicator
SATA 0,1,2,3	SATA Headers (See note page 1-7)
Slot 4, 6	PCI 33 MHz Slots
Slot 5	PCI-Express x4 Slot (x8 physical)
Slot 7	PCI-Express x16 Slot
USB 0-1	(Back Panel) USB Ports
USB 2-5	(Back Panel) USB Ports
USB 6/7,8/9	(Front Panel) USB Headers 6-7 (J44), 8-9 (J45)
USB 10	Vertical USB Port (J47)
VGA	Video/Graphics Connector (JG1)

Motherboard Features

Processor

- Single Intel Core 2 Duo/Core 2 Quad Processor with a system bus speed of 1333/1066/800 MHz.
- Supports Intel Dual Core Technology, Hyper-Threading, Wide Dynamic Execution, FSB Dynamic Bus Inversion (DBI), Advanced Digital Media Boost, Smart Memory Access, and Thermal Management 2 (TM2)

Memory

• Supports single or dual channel unbuffered Non-ECC DDR2 up to 8GB at 800/667 MHz for single channel mode or dual-channel interleaved mode in four DIMM sockets. **Note: See Section 2-4 for details.**

Chipset

- Intel Q35 GMCH
- ICH9DO with support for RAID 0,1,5,10 in Windows and 0,1,10 in Linux

Expansion Slots

- One (1) PCI-Express x16 (Slot 7)
- One (1) PCI-Express x4 (x8 physical) (slot 5)
- Two (2) 32-bit PCI 33MHz (Slot 4 and 6)

BIOS

- 16 Mb Firmware SPI Phoenix BIOS® Flash BIOS
- DMI 2.3, PCI 2.2, ACPI 1.0/2.0, SMBIOS 2.3, and Plug and Play (PnP)

PC Health Monitoring

- Onboard voltage monitors for CPU core voltage, memory voltage,+1.8V, +3.3V +5V standby, +5V, ±12V, Vbat (battery voltage), and Hyper-Threading
- Fan status monitor with firmware 4 pin fan speed control
- CPU 4-Phase-switching voltage regulator
- SuperDoctor III, Watch Dog, NMI
- Power-up mode control for recovery from AC power loss
- CPU/System overheat LED and control
- System resource alert via Supero Doctor III
- Auto-switching voltage regulator for the CPU core
- CPU Thermal Trip support
- Thermal Monitor 2 (TM2) support

ACPI Features

- Slow blinking LED for suspend state indicator
- BIOS support for USB keyboard
- Main switch override mechanism
- External modem ring-on

Onboard I/O

- Built in ICH9DO SATA Controller, four connectors for up to four devices

***Note**: The onboard SATA 0,1,4,5 may be displayed as SATA 0,1,2,3 as the order on the silkscreen may differ from the one shown in the BIOS (see Chapter 4).*

- Four Fast UART 16550 compatible serial port/header
- Intel 82566DM Gigabit Ethernet controller
- PS/2 mouse and keyboard ports
- IT8213 ITE controller supports up to two IDE devices
- 11 USB 2.0 ports for a speed of up to 480Mbps
- Realtek ALC 883 7.1 Channel High Definition Audio (HDA) codecs supports 10 DAC Channels
- Built-in GMCH and Onboard VGA Connector

Other

- Trusted Platform Module (TPM) support
- Wake-on-LAN
- Wake-on-Ring (WOR)
- System Bus Clock Frequency Selection (Overclocking) Support
- Suspend-to-RAM
- Onboard +5V Standby Power Warning LED ("LE1")
- Pb Free

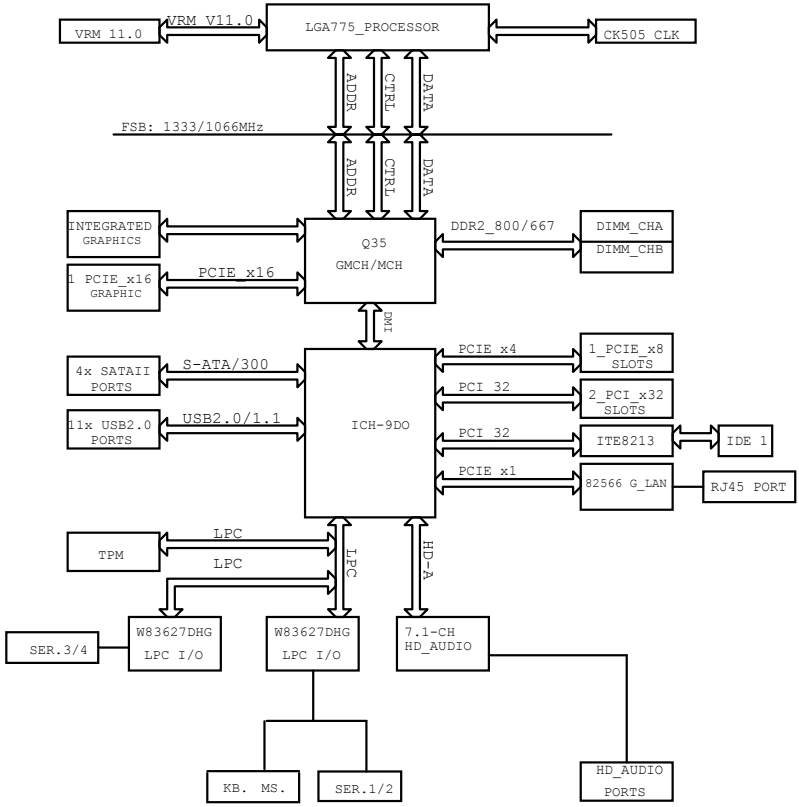
CD Utilities

- BIOS flash upgrade utility
- Drivers and software for Intel Q35 chipset utilities

Dimensions

- Micro ATX form factor, 9.6" x 9.6" (243.8 mm x 243.8 mm)

Block Diagram



C2SBM-Q System Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. See the following pages for the actual specifications of each motherboard.

1-2 Chipset Overview

The Intel Q35 Chipset is specially designed for use with Intel Core 2 Duo and Quad processors. It consists of two primary components: the Graphic Memory Controller Hub (GMCH) and the I/O Controller Hub (ICH9DO). The GMCH manages the data flow between the CPU interface, the System Memory interface, the External Graphics interface, and the I/O Controller through the DMI (Direct Media) Interface. The ICH9DO provides a multitude of I/O related functions.

Graphic Memory Controller Hub (GMCH)

Utilizing a single LGA 775 socket processor, the Q35 GMCH supports an FSB frequency of 1333/1066/800 MHz. Host-initiated I/O cycles are decoded to the PCI-Express, the DMI, or the GMCH configuration space. Host-initiated memory cycles are decoded to PCI-Express, DMI or system memory. The GMCH supports 36-bit host bus addressing and a Cache Line Size of 64 bytes.

The GMCH supports one or two channels of DDR2 memory with up to two DIMMs per channel with a maximum bandwidth of 6.4 GB/s in asymmetric mode or 12.8 GB/s in symmetric mode using DDR2 800 MHz memory. It also supports an opportunistic refresh scheme, a memory thermal management scheme and Partial Writes to Memory using Data Mask (DM) signals.

The GMCH contains one PCI-Express x16 port intended for an external PCI-Express graphics card that is compatible with the PCI Express Base Specification revision 1.1. This PCI-E x16 port runs at a frequency of 2.5 GB/s on each lane and supports a maximum theoretical bandwidth of 40 GB/s in each direction for an aggregate of 8 GB/s @ x16. It supports traditional PCI-/AGP-style traffic and a PCI-Exp. Enhanced Addressing Mechanism with advanced capabilities in automatic discovery, negotiation and training of link out of reset.

Providing the high-speed, chip-to-chip connection between the GMCH and ICH9 is the Direct Media Interface (DMI). The DMI integrates advanced priority-based servicing, allowing for concurrent traffic, true isochronous transfer capabilities and permitting current as well as legacy software to function seamlessly.

Intel ICH9DO System Features

The Intel 9th Generation I/O Controller Hub (ICH9DO) supports a variety of I/O related functions and PCI devices, including the following:

- DMI-to PCI Bridge
- LPC Controller
- SATA Controllers #1 and #2
- Thermal Subsystem
- SMBus Controller
- USB FS/LS UHCI Controllers #1, #2

Note: *For more information on the ICH9DO, please refer to Intel's website.*

1-3 Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must hit the power switch to turn it back on) or for it to automatically return to a power on state. See the Power Lost Control setting in the BIOS chapter of this manual to change this setting. The default setting is **Last State**.

1-4 PC Health Monitoring

This section describes the PC health monitoring features of the C2SBM-Q. The motherboard has an onboard System Hardware Monitor chip that supports PC health monitoring.

The onboard voltage monitor will scan the voltages of the Onboard Voltage Monitors for the CPU Core, +1.8V, +3.3V, +5V standby, +5V, Vbat and ±12V continuously. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor by using SuperO Doctor III.

1-5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers. This also includes consumer devices connected to the PC such as VCRs, TVs, telephones and stereos.

In addition to enabling operating system-directed power management, ACPI provides a generic system event mechanism for Plug and Play and an operating- system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with Windows 2000, Windows XP, Windows 2003, Windows 2003 Servers.

Enhanced Power Management

The onboard ICH9 chip provides advanced power management functions that will greatly improve the performance of various low-power (suspend) states and en-

hance clock control. A hardware-based component provides software-independent thermal management that is compatible with the ACPI Revision 3.0a.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will wake-up and the LED will automatically stop blinking and remain on.

BIOS Support for USB Keyboard

If the USB keyboard is the only keyboard in the system, it will function like a normal keyboard during system boot-up.

Wake-On-LAN (WOL)

Wake-On-LAN is defined as the ability of a management application to remotely power up a computer that is powered off. Remote PC setup, up-dates and asset tracking can occur after hours and on weekends so that daily LAN traffic is kept to a minimum and users are not interrupted. The motherboard has a 3-pin header (WOL) to connect to the 3-pin header on a Network Interface Card (NIC) that has WOL capability. In addition, an onboard LAN controller can also support WOL without any connection to the WOL header. The 3-pin WOL header is to be used with a LAN add-on card only.

Note: *Wake-On-LAN requires an ATX 2.01 (or above) compliant power supply.*

1-6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates of 1 GHz and faster.

The SUPER® C2SBM-Q accommodates 12V ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. A 2-Amp of current supply on a 5V Standby rail is strongly recommended.

It is strongly recommended that you use a high quality power supply that meets 12V ATX power supply Specification 1.1 or above. It is also required that the 12V 4-pin power connection (J41) be used for high-load configurations. In areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

1-7 Versatile Media Capabilities

High Definition Audio

The High Definition Audio Controller embedded in the ICH9 delivers up to 4 codecs that can be used for different types of codecs, such as audio and modem codecs. Operating at 3.3V or 1.5V, the embedded Audio Controller supports a multi-channel audio stream, 32-bit sample depth, up to 192 kHz of same rate, and can be used with a variety of microphones for input. With these versatile audio capabilities built in, the C2SBM-Q provides the user with a surreal audio experience that is larger than life.

I/O Virtualization Technology (VT-d)

With the Intel ICH9 built in, the C2SBM-Q supports I/O Virtualization Technology (VT-d) that enables multiple operating systems and applications to run in independent partitions. Each partition uses its own subset of host physical memory, and behaves like a virtual machine (VM), providing isolation and protection across multiple partitions. This feature is available when a processor that supports the virtualization of platforms is installed on the motherboard.

1-8 Super I/O

The disk drive adapter functions of the Super I/O chip include a data separator, write pre-compensation circuitry, decode logic, data rate selection, a clock generator, drive interface control logic and interrupt and DMA logic. The Super I/O supports two 360 K, 720 K, 1.2 M, 1.44 M or 2.88 M disk drives and data transfer rates of 250 Kb/s, 500 Kb/s or 1 Mb/s.

It also provides four high-speed, 16550 compatible serial communication ports (UARTs). Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O provides functions that comply with the ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through a SMI or SCI function pin. It also features auto power management to reduce power consumption.

Chapter 2

Installation

2-1 Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge or touch a grounded metal object before removing the board from the antistatic bag. Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. Do not install the onboard battery upside down to avoid possible explosion.

Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

2-2 Motherboard Installation

Note: *Be sure to mount the motherboard into the chassis before you install the CPU onto the motherboard.*

All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all the mounting holes for both motherboard and chassis match. Make sure that the metal standoffs click in or are screwed in tightly. Then use a screwdriver to secure the motherboard onto the motherboard tray.

Note: *Some components are very close to the mounting holes. Please take precautionary measures to preve nt damage to these components when installing the motherboard to the chassis. To avoid damaging the motherboard and its components, please do not use a force greater than 8 lb/inch on each mounting screw during motherboard installation.*

2-3 Processor and Heatsink Installation

Warning: When handling the processor package, avoid placing direct pressure on the label area of the fan.

Notes:

1. Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU LGA 775 socket before you install the CPU heatsink.

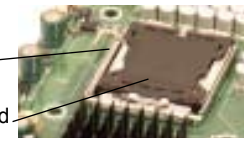
2. The Intel LGA 775 Processor package contains the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel-certified multi-directional heatsink and fan.

3. Make sure to install the motherboard into the chassis before you install the CPU heatsink and fan.

4. When purchasing an LGA 775 Processor or when receiving a motherboard with an LGA 775 Processor pre-installed, make sure that the CPU plastic cap is in place and none of the CPU pins are bent; otherwise, contact the retailer immediately.

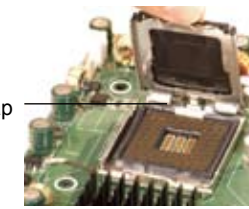
5. Refer to the MB Features Section for more details on CPU support.

Installation of the LGA 775 Processor



1. Press the load lever to release the load plate, which covers the CPU socket, from its locking position.

2. Gently lift the load lever to open the load plate.



3. Use your thumb and your index finger to hold the CPU at the top center edge and the bottom center edge of the CPU.

4. Align CPU Pin1 (the CPU corner marked with a triangle) against the socket corner that is marked with a triangle cutout.

5. Align the CPU key that is the semi-circle cutout below a golden dot against the socket key, the Notch on the same side of the triangle cutout on the socket.

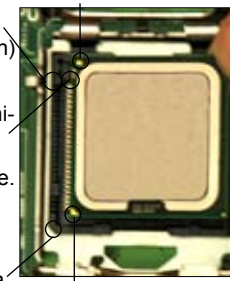
6. Once aligned, carefully lower the CPU straight down to the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically. Do not rub the CPU against the surface or against any pins of the socket to avoid damage to the CPU or the socket.)

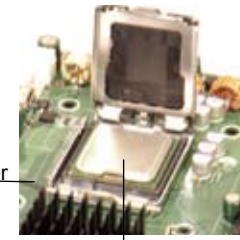
7. With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.

8. Use your thumb to gently push the load lever down to the lever lock.

9. If the CPU is properly installed into the socket, the plastic PnP cap will be automatically released from the load plate when the load lever is pushed in the lever lock. Remove the PnP cap from the motherboard.

Warning: Please save the plastic PnP cap. The motherboard must be shipped with the PnP cap properly installed to protect the CPU socket pins. Shipment without the PnP cap properly installed will cause damage to the socket pins.





Installation of the Heatsink

1. Locate the CPU Fan on the motherboard. (Refer to the layout on the right for the CPU Fan location.)

2. Position the heatsink in such a way that the heatsink fan wires are closest to the CPU fan and are not interfered with other components.

3. Inspect the CPU Fan wires to make sure that the wires are routed through the bottom of the heatsink.

4. Remove the thin layer of the protective film from the copper core of the heatsink.

Warning: CPU overheat may occur if the protective film is not removed from the heatsink.

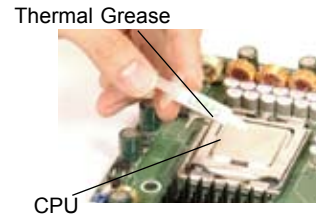
5. Apply the proper amount of thermal grease on the CPU.

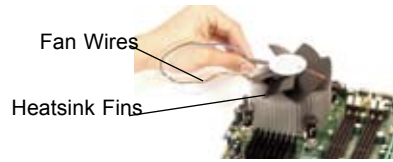
Note: if your heatsink came with a thermal pad, please ignore this step.

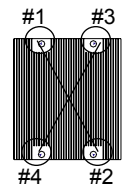
6. If necessary, rearrange the wires to make sure that the wires are not pinched between the heatsink and the CPU. Also make sure to keep clearance between the fan wires and the fins of the heatsink.

7. Align the four heatsink fasteners with the mounting holes on the motherboard. Gently push the pairs of diagonal fasteners (#1 & #2, and #3 & #4) into the mounting holes until you hear a click.

Note: Make sure to orient each fastener in a way that the narrow end of the groove is pointing outward.







Narrow end of the groove points outward

8. Repeat Step 6 to insert all four heatsink fasteners into the mounting holes.

9. Once all four fasteners are securely inserted into the mounting holes and the heatsink is properly installed on the motherboard, connect the heatsink fan wires to the CPU Fan connector.

Heatsink Removal

1. Unplug the power cord from the power supply.

2. Disconnect the heatsink fan wires from the CPU fan header.

3. Use your finger tips to gently press on the fastener cap and turn it counterclockwise to make a 1/4 (90^0) turn, and then pull the fastener upward to loosen it.

4. Repeat Step 3 to loosen all fasteners from the mounting holes.

5. With all fasteners loosened, remove the heatsink from the CPU.

2-4 Installing DIMMs

Note: *Check the Supermicro web site for recommended memory modules.*

Warning: Exercise extreme care when installing or removing DIMM modules to prevent any possible damage. Also note that the memory is interleaved to improve performance (see step 1).

DIMM Installation

1. Insert the desired number of DIMMs into the memory slots, starting with DIMM1A. The memory scheme is interleaved so you must install two modules at a time, beginning with DIMM1A, DIMM1B, then, DIMM2A and DIMM2B.

2. Insert each DIMM module vertically into its slot. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly.

3. Gently press down on the DIMM module until it snaps into place in the slot. Repeat for all modules (see step 1 above).

Memory Support

The C2SBM-Q supports up to 8 GB Unbuffered Non-ECC DDR2 800/677 MHz in 4 DIMMs. Populating DIMM#1A,DIMM#1B, and/or DIMM#2A, DIMM#2B with memory modules of the same size and of the same type will result in dual channel, two-way interleaved memory that is faster than the single channel, non-interleaved memory.

Notes:

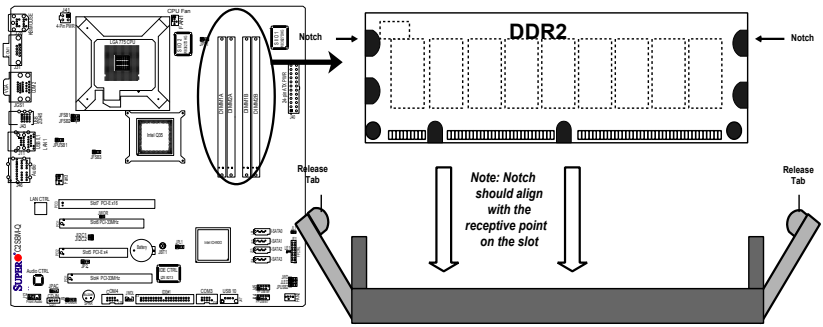
1. Due to the OS limitations, some operating systems may not show more than 4GB of memory.

2. Both Unbuffered ECC and Non-ECC memory modules can be installed in the memory slots. However, the functionality of ECC is not supported by the chipset.

3. Due to memory allocation to system devices, memory remaining available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional. (Refer to the following Memory Availability Table for details.) For Microsoft Windows users: Microsoft implemented a design change in Windows XP with Service Pack 2 (SP2) and Windows Vista. This change is specific to the Physical Address Extension (PAE) mode behavior which improves driver compatibility. For more information, please read the following article at Microsoft's Knowledge Base website at: http://support.microsoft.com/kb/888137.

Possible System Memory Allocation & Availability		
System Device	Size	Physical Memory Remaining (-Available) (4 GB Total System Memory)
Firmware Hub flash memory (System BIOS)	1 MB	3.99
Local APIC	4 KB	3.99
Area Reserved for the chipset	2 MB	3.99
I/O APIC (4 Kbytes)	4 KB	3.99
PCI Enumeration Area 1	256 MB	3.76
PCI Express (256 MB)	256 MB	3.51
PCI Enumeration Area 2 (if needed) -Aligned on 256-MB boundary-	512 MB	3.01
VGA Memory	16 MB	2.85
TSEG	1 MB	2.84
Memory available to OS and other applications		2.84

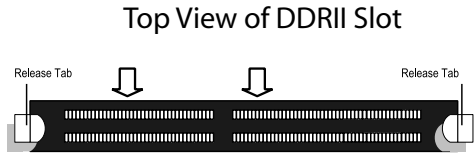
Installing and Removing DIMMs



To Install: Insert module vertically and press down until it snaps into place. Pay attention to the alignment notch at the bottom.

To Remove:
Use your thumbs to gently push the release tabs near both ends of the module. This should release it from the slot.

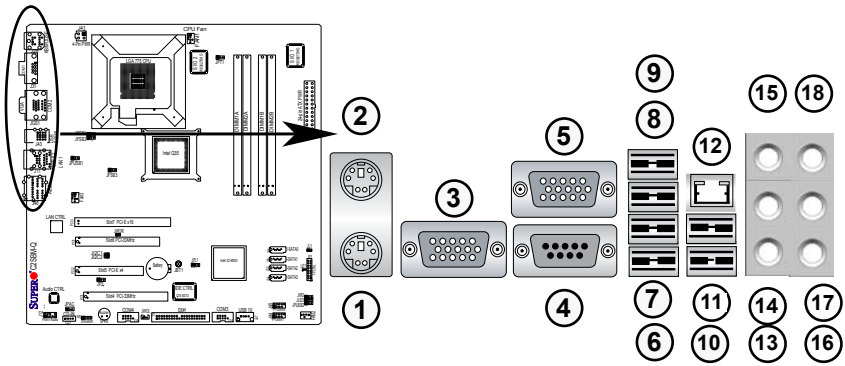
Top View of DDR2



2-5 Control Panel Connectors/IO Ports

The I/O ports are color coded in conformance with the PC 99 specification. See Figure 2-3 below for the colors and locations of the various I/O ports.

1. Back Panel Connectors/IO Ports



Back Panel I/O Port Locations and Definitions

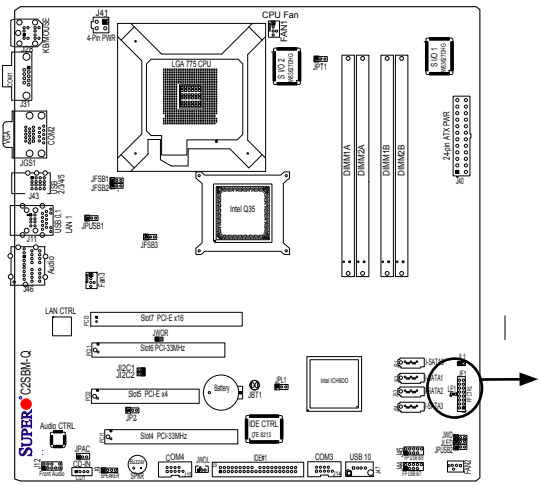
Back Panel Connectors

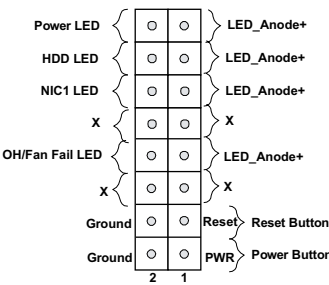
1. Keyboard (Purple)
2. PS/2 Mouse (Green)
3. COM 1
4. VGA
5. COM 2
6. USB 2
7. USB 3
8. USB 4
9. USB 5
10. USB Port 0
11. USB Port 1
12. Gigabit LAN
13. Side Surround (Grey)
14. Back Surround (Black)
15. CEN/LFE (Orange)
16. Microphone-In (Pink)
17. Front (Green)
18. Line-In (Blue)

(See Section 2-5 for details.)

2. Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Super Micro server chassis. See Figure 2-4 for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.





3. Front Control Panel Pin Definitions

Power LED

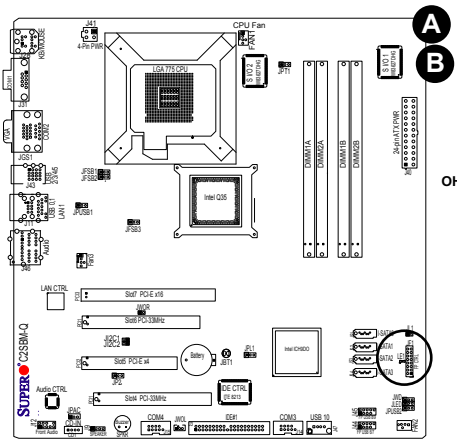
The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	LED_Anode+
16	PWR LED Signal

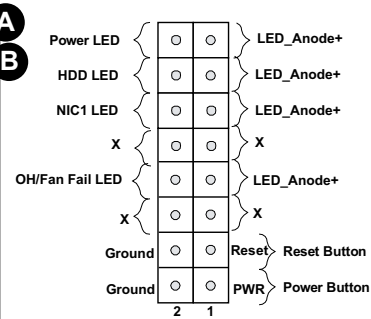
HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a hard drive LED cable here to display disk activity (for any hard drives on the system, including SAS and Serial ATA). See the table on the right for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	LED_Anode+
14	HD Active



Header Pins



A. PWR LED connector

B. HDD LED connector

NIC1 Indicator

The NIC (Network Interface Controller) LED connection for the GLAN port is located on pins 11 and 12 of JF1. Attach the NIC LED cables to display network activity. Refer to the table on the right for pin definitions.

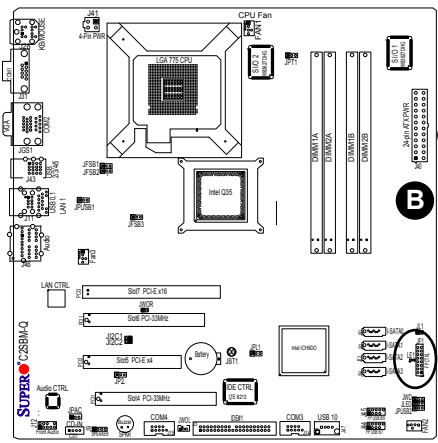
GLAN 1 LED Pin Definitions (JF1)	
Pin#	Definition
11	LED_Anode+
12	NIC1 LED Signal

Overheat/Fan Fail LED (OH)

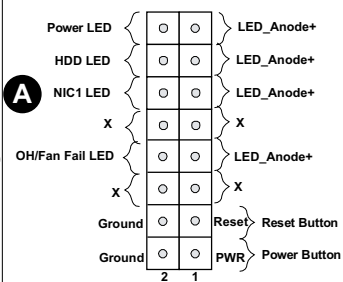
Connect an LED to the OH/Fan Fail connection on pins 7 and 8 of JF1 to provide advanced warnings of chassis overheating or fan failure. Refer to the table on the right for pin definitions.

OH/Fan Fail LED Pin Definitions (JF1)	
Pin#	Definition
7	LED_Anode+
8	OH/Fan Fail LED Signal

OH/Fan Fail Indicator Status	
State	Definition
Off	Normal
On	Overheat
Flashing	Fan Fail



Header Pins



A. NIC1 LED

B. OH/Fan Fail LED

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case. Refer to the table on the right for pin definitions.

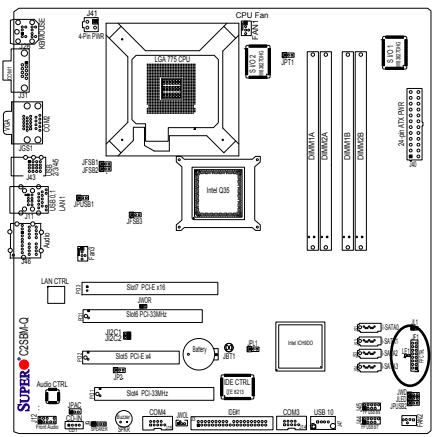
Reset Button Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	Ground

Power Button

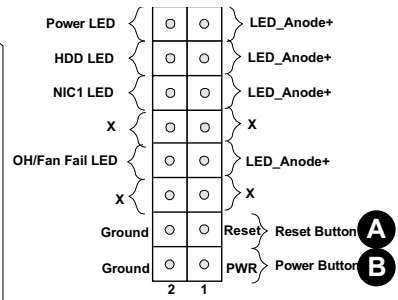
The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - see Chapter 4). To turn off the power when set to suspend mode, press the button for at least 4 seconds. Refer to the table on the right for pin definitions.

Power Button Pin Definitions (JF1)	
Pin#	Definition
1	Signal
2	+3V Standby

Note: *Do not close or short Pins 1 & 2 since this will cause the system to continuously reboot.*



Header Pins



A. Reset

B. PWR Button

2-6 Connecting Cables

ATX/Auxiliary Power Connectors

A 24-pin main power connector is located at J40. This power connector meet the SSI EPS 12V specification. See the table on the right for pin definitions.

ATX Power 24-pin Connector Pin Definitions

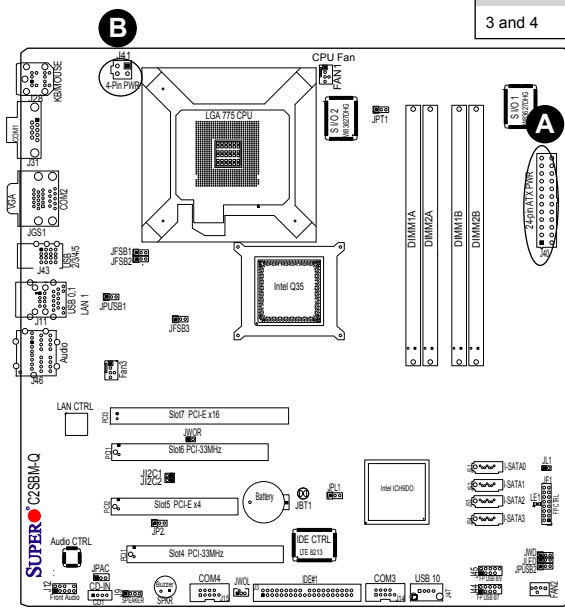
Pin#	Definition	Pin #	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res (NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

4-pin CPU Power Connector

A 4-pin 12V power connector is located at J41 on the motherboard. This power connector also meets the SSI EPS 12V specification, and is required to ensure adequate power to the processor. See the table on the right for pin definitions.

12V 4-pin Power Connector Pin Definitions

Pins	Definition
1 and 2	Ground
3 and 4	+12V



A. 24-pin ATX PWR

B. 4-pin PWR

Universal Serial Bus (USB)

There are 11 USB 2.0 (Universal Serial Bus) ports/headers on the motherboard. Six of them are Back Panel USB ports: USB 0/1 (J11) and USB 2/3/4/5 (J43). The other four are headers that can be used for front panel connections: USB 6/7 (J44), USB 8/9 (J45) and one vertical USB port, USB 10. See the tables on the right for pin definitions.

Back Panel USB (0-5)

Pin#	Definitions
1	+5V
2	PO-
3	PO+
4	Ground
5	N/A

Front Panel USB (6/7/8/9) and Front-Accessible Onboard USB (10) Connections

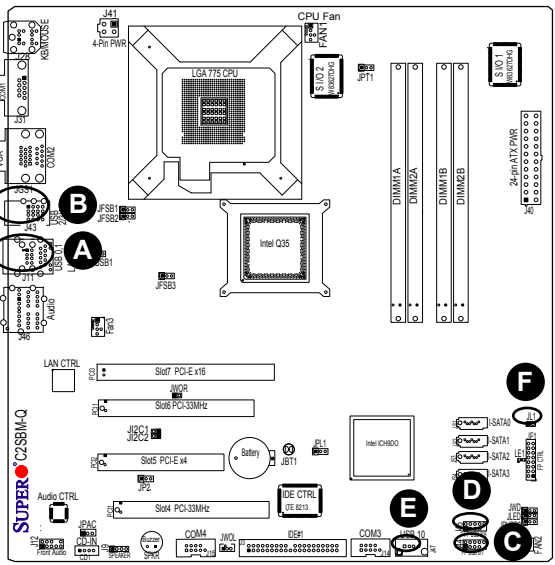
Pin #	Definition	Pin #	Definition
1	+5V	1	+5V
2	PO-	2	PO-
3	PO+	3	PO+
4	Ground	4	Ground
5	Key	5	No connection

Chassis Intrusion

A Chassis Intrusion header is located at JL1 on the motherboard. Attach an appropriate cable from the chassis to inform you of a chassis intrusion when it is opened.

Chassis Intrusion Pin Definitions (JL1)

Pin#	Definition
1	Intrusion Input
2	Ground



A. Back panel USB Ports 0/1

B. Back panel USB Ports 2/3/4/5

C. Front Panel USB 6/7

D. Front Panel USB 8/9

E. One board vertical USB port 10

F. Chassis Intrusion

Fan Headers

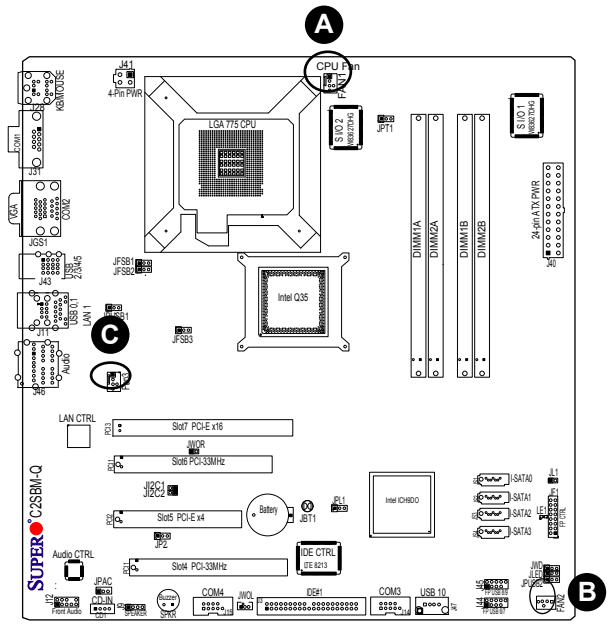
The C2SBM-Q has three chassis fan headers (Fan 1 to Fan 3). Fan 1 is the CPU Fan. Fan 2 to Fan 3 are system/chassis fans.

Fan Header Pin Definitions (Fan1-3)	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	PWR Modulation

Note: *Pins 1-3 of a 4-pin fan headers are backward compatible with the traditional 3-pin fans.) See the table on the right for pin definitions. *The onboard fan speeds are controlled by Thermal Management via BIOS Hardware Monitoring in the Advanced Setting. (Default: Disabled. When using Thermal Management settings, please use all 3-pin fans or all 4-pin fans on the motherboard.)*

VGA Connector

A VGA connector (JG1) is located next to the USB ports on the IO backplane. Refer to the board layout below for the location.



A. Fan 1 (CPU Fan)

B. Fan 2

C. Fan 3

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse are located at J28. See the table on the right for pin definitions. (The mouse port is above the keyboard port. See the table on the right for pin definitions.)

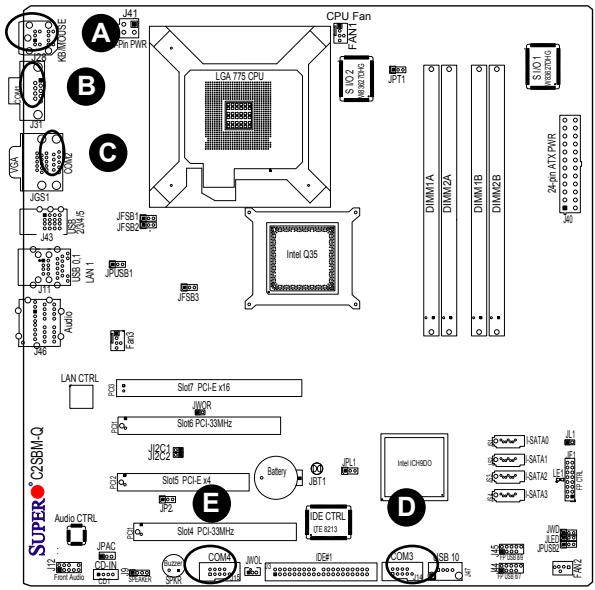
PS/2 Keyboard and Mouse Port Pin Definitions	
Pin#	Definition
1	Data
2	NC
3	Ground
4	VCC
5	Clock
6	NC

Serial Ports

COM 1 (JGS1) and COM 2 (JGS1) are connectors located on the IO Backpanel, COM 3 (J14) and COM 4 (J15) are headers. See the table on the right for pin definitions.

Serial Port Pin Definitions			
Pin #	Definition	Pin #	Definition
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	NC

(Pin 10 is available on COM2 only. NC: No Connection.)



A. Keyboard/Mouse
B. COM1
C. COM2
D. COM3
E. COM4

Wake-On-Ring

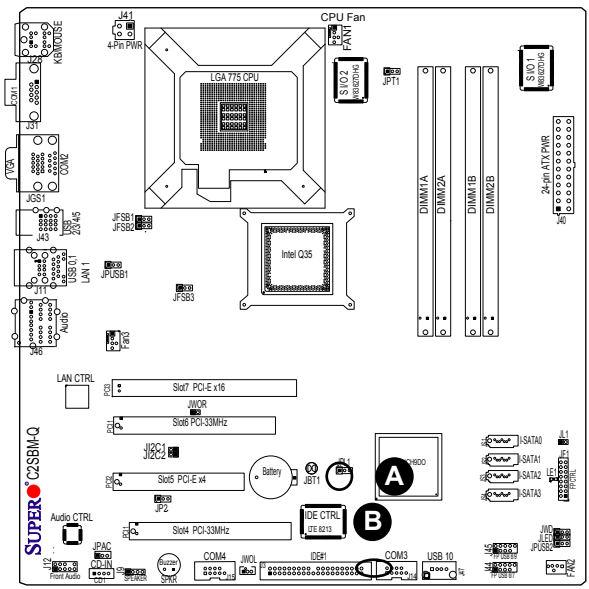
The Wake-On-Ring header is designated JWOR. This function allows your computer to receive and be "awakened" by an incoming call when in the suspend state. See the table on the right for pin definitions. You must have a Wake-On-Ring card and cable to use this feature.

Wake-On-Ring Pin Definitions (JWOR)	
Pin#	Definition
1	Ground
2	Wake-up

Wake-On-LAN

The Wake-On-LAN header is located at JWOL on the motherboard. See the table on the right for pin definitions. (You must also have a LAN card with a Wake-On-LAN connector and cable to use this feature.)

Wake-On-LAN Pin Definitions (JWOL)	
Pin#	Definition
1	+5V Standby
2	Ground
3	Wake-up



A. WOR

B. WOL

GLAN 1 (Gigabit Ethernet Port)

A G-bit Ethernet port is located at J11 on the IO backplane. This port accepts RJ45 type cables.

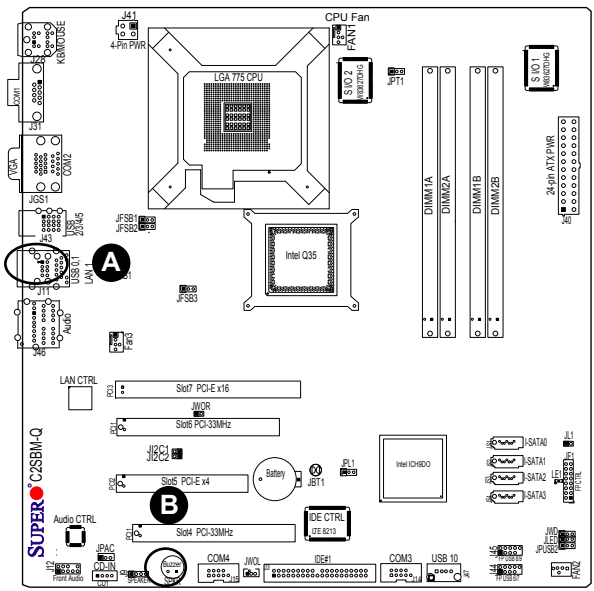
GLAN1

Speaker

A Speaker/Buzzer header (J9) is located on the motherboard. See the table on the right for speaker pin definitions.

Speaker Connector (J9)	
Pin Setting	Definition
Pins 3-4	Internal Speaker
Pins 1-4	External Speaker

Note: *The speaker connector pins are for use with an external speaker. If you wish to use the onboard speaker, you should close pins 3-4 with a jumper.*

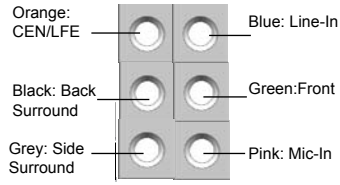


A. GLAN1

B. Speaker/Buzzer

High Definition Audio (HDA)

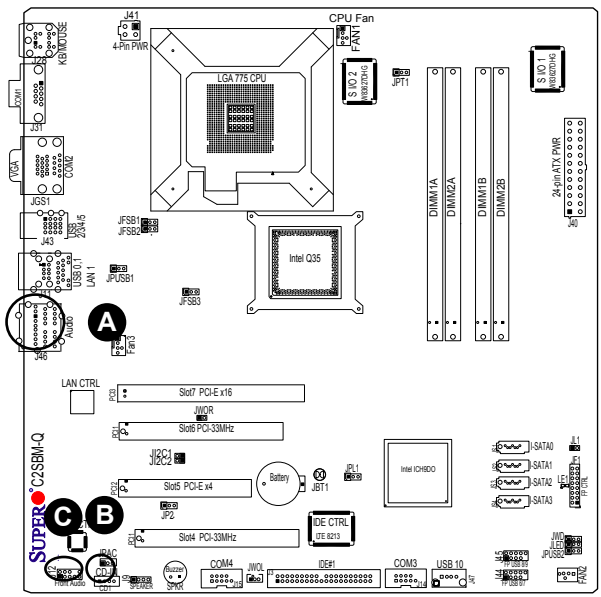
The C2SBM-Q features a 7.1+2 Channel High Definition Audio (HDA) (J46) codec that provides 10DAC channels, simultaneously supporting 7.1 sound playback and two channels of independent stereo sound output (multiple streaming) through the front panel stereo out for front L&R, rear L&R, center and subwoofer speakers. This feature is activated with the Advanced software in the CD-ROM that came with your motherboard. Sound is then output through the Line In, Line Out and MIC jacks (See at the picture at right).



CD Header

A 4-pin CD header is located at CD1, and an Auxiliary header is located at J12 on the motherboard. These headers allow you to use the onboard sound for audio CD playback. Connect an audio cable from your CD drive to the header that fits your cable's connector. Only one CD header can be used at any one time. See the tables at right for pin definitions.

CD1 Pin Definition	
Pin#	Definition
1	Left Stereo Signal
2	Ground
3	Ground
4	Right Stereo Signal



A. HD Audio

B. CD-In

C. Front Panel Audio

Front Panel Audio Control

When front panel headphones are plugged in, the back panel audio output is disabled. This is done through the FP Audio header (J12). If the front panel interface card is not connected to the front panel audio header, jumpers should be installed on the header (J12) pin pairs: 1-2, 5-6, and 9-10. If these jumpers are not installed, the back panel line out connector will be disabled and microphone input Pin 1 will be left floating, which can lead to excessive back panel microphone noise and cross talk. See the table below for pin definitions.

High Definition Fron Panel Audio

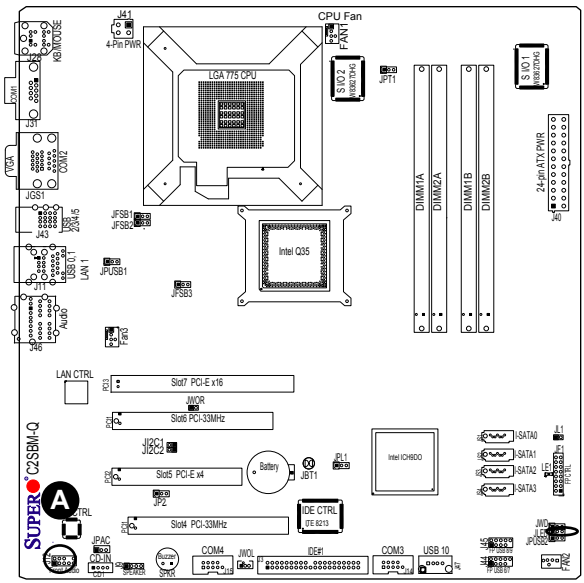
Pin#	Signal
1	MC_L
2	AUD_GND
3	MC_R
4	FP_Audio-Detect
5	Line_2_R
6	Ground
7	FP_Jack-Detect
8	Key
9	Line_2_L
3	Ground

Power LED

The Power LED connector is designated JLED. This connection is used to provide LED Indication of power supplied to the system. See the table on the right for pin definitions.

PWR LED Pin Definitions

Pin#	Definition
1	+5V
2	Key
3	Ground



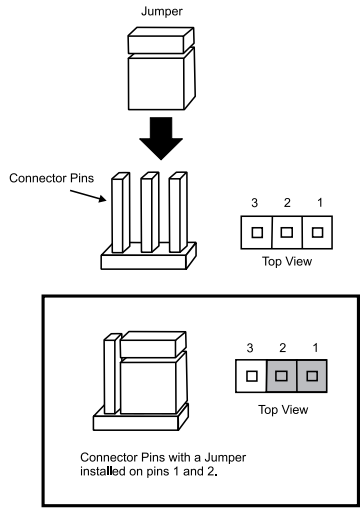
A. Front Panel Audio

B. PWR LED

2-7 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.

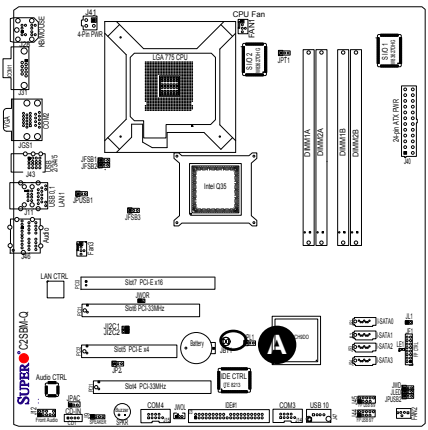


Note: *On two pin jumpers, "Closed" means the jumper is on and "Open"* means the jumper is off the pins.

GLAN Enable/Disable

JPL1 enables or disables the GLAN Port on the motherboard. See the table on the right for jumper settings. The default setting is enabled.

GLAN Enable	
Pin#	Definition
1-2	Enabled (*default)
2-3	Disabled



A. GLAN Port1 Enable

Audio Enable

JPAC enables or disables the onboard audio connections. See the table on the right for jumper settings. The default setting is Enabled.

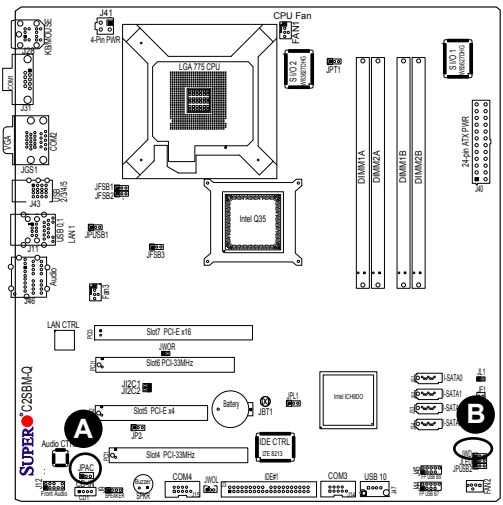
IDE Enable (JPAC)	
Pin#	Definition
1-2	Enabled (*default)
2-3	Disabled

Watch Dog Enable/Disable

JWD controls the Watch Dog function. Watch Dog is a system monitor that can reboot the system when a software application hangs. Close pins 1-2 to reset the system if an application hangs. Close pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. See the table on the right for jumper settings. Watch Dog must also be enabled in the BIOS.

Watch Dog Jumper Settings (JWD)	
Jumper Setting	Definition
Pins 1-2	Reset (*default)
Pins 2-3	NMI
Open	Disabled

Note: *When enabled, the user needs to write his/her own application software to disable the Watch Dog Timer.*



A. Audio Enable

B. Watch Dog Enable

CPU Front Side Bus Speed

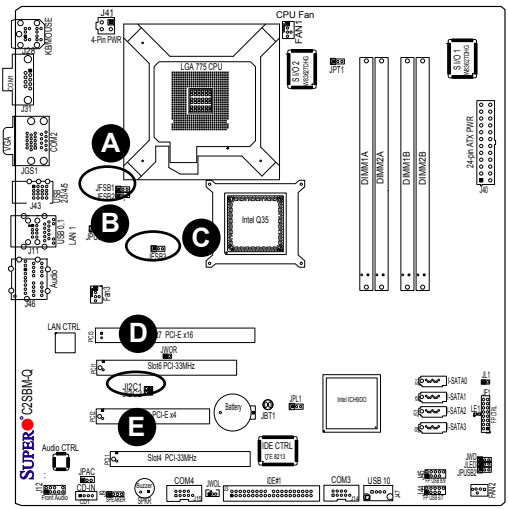
JFSB1, JFSB2 and JFSB3 allow you to set the Front Side Bus Frequency. See the table on the right for pin definitions. (*__Default__: Auto.)

CPU FSB Jumper Settings			
JFSB3	JFSB2	JFSB1	Frequency
1-2	1-2	1-2	*Auto
Open	2-3	2-3	333MHz
2-3	2-3	2-3	266MHz
2-3	Open	2-3	200MHz
2-3	2-3	Open	133MHz

PCI/PCI-E Slots to SMB Speeds

Jumpers JI^{2}C1/JI^{2}C2 allow you to connect PCI/PCI-Exp. Slots to the System Management Bus. The default setting is open to disable the connection. See the table on the right for jumper settings.

SMBus to PCI-X/PCI-Exp Slots Jumper Settings	
Jumper Setting	Definition
Closed	Enabled
Open	Disabled (*Default)

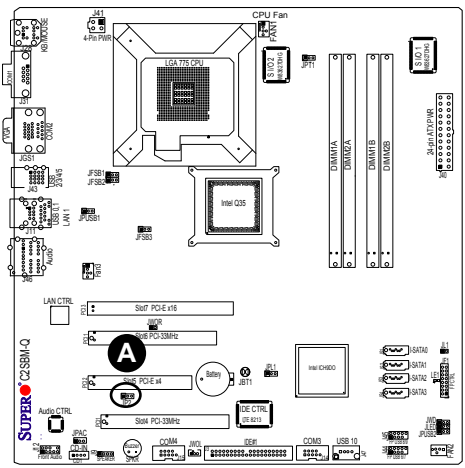


A. JFSB1
B. JFSB2
C. JFSB3
D. JI^{2}C1
E. JI^{2}C2

IDE Enable/Disable

JP2 enables or disables IDE#1 on the C2SBM-Q. See the table on the right for jumper settings. The default setting is enabled.

IDE Enable (JP2)	
Pin#	Definition
1-2	Enabled (*default)
2-3	Disabled



A. IDE Enable

USB Wake-Up

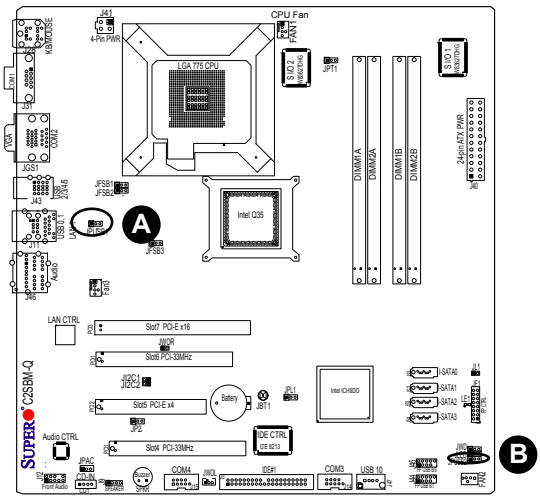
Use JPUSB jumpers to enable the function of "System Wake-Up via USB devices", which allows you to "wake-up" the system by pressing a key on the USB keyboard or by clicking the USB mouse of your system. The JPUSB jumpers are used together with the USB Wake-Up function in the BIOS. Enable both the jumpers and the BIOS setting to allow the system to "wake-up via USB Devices". See the table on the right for jumper settings and jumper connections.

JPUSB2 (Front Panel USB Wake-up)	
Pin#	Definition
1-2	Enabled
2-3	Disabled (*default)

JPUSB1 (Back Panel USB Wake-up)	
Pin#	Definition
1-2	Enabled (*default)
2-3	Disabled

Note 1: *JPUSB1 is for Back Panel USB ports:0/1/2/3/4/5, and JPUSB2 is for Front Panel USB ports:6/7/8/9/10.)*

Note 2: *The default jumper setting for the USB ports is "Disabled". However, when the "USB Wake-Up" function is enabled in the BIOS and the desired USB ports are enabled via the JPUSB jumper, please be sure to remove all USB devices from the USB ports whose USB jumpers are set to "Disabled" before the system goes into the standby mode.*



A. JPUSB1

B. JPUSB2

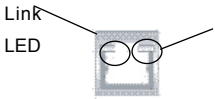
2-8 Onboard Indicators

GLAN LEDs

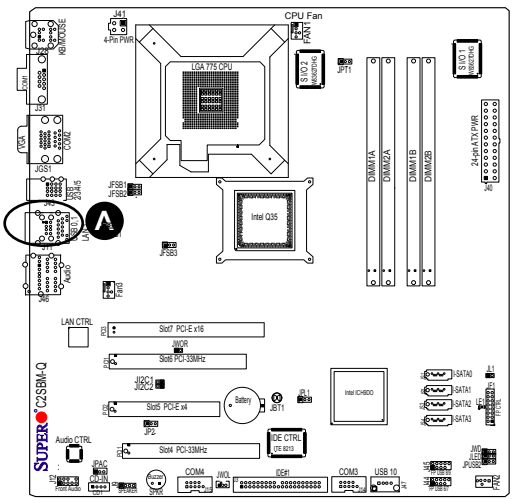
There is one Gigabit-LAN port (J11). This Gigabit Ethernet LAN port has two LEDs. The yellow LED indicates activity, while the Link LED may be green, amber or off to indicate the speed of the connection. See the tables at right for more information.

GLAN Activity Indicator		
Color	Status	Definition
Yellow	Flashing	Active

GLAN Link Indicator	
LED Color	Definition
Off	No Connection or 10 Mbps
Green (On)	100 Mbps
Amber (On)	1 Gbps



Rear View
(When viewing from the rear side of the chassis.)

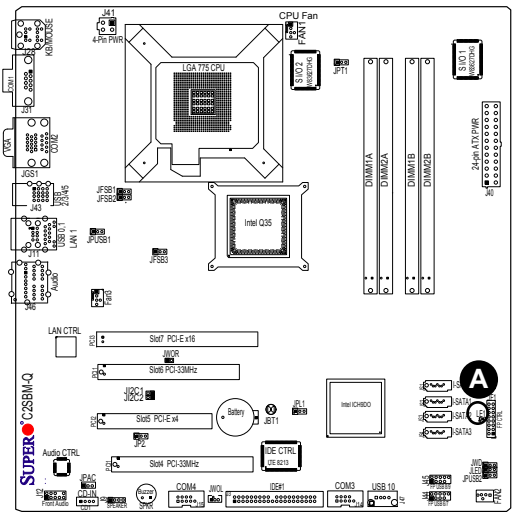


A. GLAN Port1 LEDs

Onboard Power LED (LE1)

The Onboard 3.3V Standby Power LED is located at LE1 on the motherboard. When LE1 is off, the system is off. When the green light is on, the system is on. When the LED is on, the power is on. Unplug the power cable before removing or installing components. See the layout below for the LED location.

Onboard PWR LED Indicator (LE1)	
LED Color	Definition
Off	System Off
On	Standby Power On
Green	System On



A. Power LED

2-9 IDE Hard Drive Connections

Note the following when connecting the hard disk drive cables:

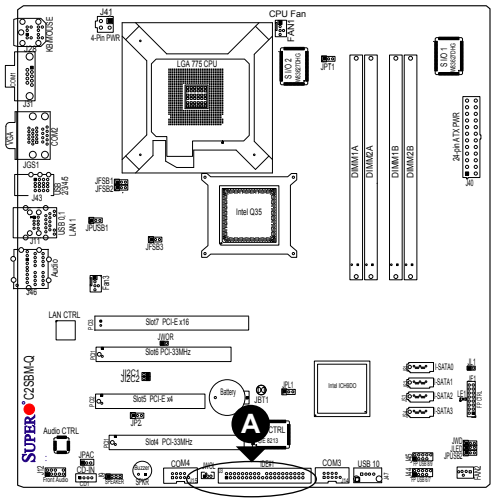
- A red mark on a wire typically designates the location of pin 1.

IDE Connector

There is one IDE Connector on the C2SBM-Q. Be sure to close Pin 1 and Pin 2 of JP2 to enable the IDE connector before using it. (Please refer to the jumper section for more details.) See the table on the right for pin definitions.

IDE Drive Connectors Pin Definitions

Pin#	Definition	Pin #	Definition
1	Reset IDE	2	Ground
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	Ground	20	Key
21	DRQ3	22	Ground
23	I/O Write	24	Ground
25	I/O Read	26	Ground
27	IOCHRDY	28	BALE
29	DACK3	30	Ground
31	IRQ14	32	IOCS16
33	Addr1	34	Ground
35	Addr0	36	Addr2
37	Chip Select 0	38	Chip Select 1
39	Activity	40	Ground



A. IDE

Chapter 3

Troubleshooting

3-1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any hardware components.

Before Power On

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
3. Remove all add-on cards.
4. Install a CPU and heatsink (making sure it is fully seated) and connect the chassis speaker and the power LED to the motherboard. Check all jumper settings as well.
5. Use the correct type of onboard CMOS battery as specified by the Manufacturer. Do not install the CMOS battery upside down to avoid possible explosion.
6. Make sure the 4-pin 12v power connector at J41 is connected to your power supply.

No Power

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Verify that all jumpers are set to their default positions.
3. Check that the 115V/230V switch on the power supply is properly set.
4. Turn the power switch on and off to test the system.
5. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

1. If the power is on but you have no video, remove all the add-on cards and cables.

2. Use the speaker to determine if any beep codes exist. Refer to Appendix A for details on beep codes.

Note: *If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended. For I/O port 80h codes, refer to App. B.*

Memory Errors

1. Make sure that the DIMM modules are properly and fully installed.
2. You should be using unbuffered DDR2 memory (see the next page). Also, it is recommended that you use the same memory speed for all DIMMs in the system. See Section 2-4 for memory limitations.
3. Check for bad DIMM modules or slots by swapping modules between slots and noting the results.
4. Check the power supply voltage 115V/230V switch.

Losing the System's Setup Configuration

1. Make sure that you are using a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-6 for details on recommended power supplies.
2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.
3. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

3-2 Technical Support Procedures

Before contacting Technical Support, please take the following steps. Also, note that as a motherboard manufacturer, Super Micro does not sell directly to end-users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our web site (http://www.supermicro.com/support/faqs/) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our web site at (http://www.supermicro.com/support/bios/).

Note: *Not all BIOS can be flashed; it depends on the modifications to the boot block code.*

3. If you still cannot resolve the problem, include the following information when contacting Super Micro for technical support:

- Motherboard model and PCB revision number
- BIOS release date/version (this can be seen on the initial display when your system first boots up)
- System configuration

  An example of a Technical Support form is on our web site at (http://www.supermicro.com/support/contact.cfm).

4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at support@supermicro.com, by phone at:(408) 503-8000, option 2, or by fax at (408)503-8019.

3-3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: The C2SBM-Q supports **unbuffered,** DDR2 667/800 MHz memory modules. See Section 2-4 for details on installing memory.

Question: Why does Microsoft Windows XP (SP2) and Windows Vista show less memory than what is physically installed?

Answer: Microsoft implemented a design change in Windows XP with Service Pack 2 (SP2) and Windows Vista. This change is specific to the Physical Address Extension (PAE) mode behavior which improves driver compatibility. For more information, please read the following article at Microsoft's Knowledge Base website at: http://support.microsoft.com/kb/888137.

Question: How do I update my BIOS?

Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our web site at http://www.supermicro.com/support/bios/. Please check our BIOS warning message and the information on how to update your BIOS on our web site. Select your motherboard model and download the BIOS file to your computer. Also, check the current BIOS revision and make sure that it is newer than your BIOS before downloading. You can choose from the zip file and the .exe file. If you choose the zip BIOS file, please unzip the BIOS file onto a bootable device or a USB pen. Run the batch file using the format flash.bat filename.rom from your bootable device or USB pen to flash the BIOS. Then, your system will automatically reboot. If you choose the .exe file, please run the .exe file under Windows to create the BIOS flash floppy disk. Insert the floppy disk into the system you wish to flash the BIOS. Then, bootup the system to the floppy disk. The BIOS utility will automatically flash the BIOS without any prompts. Please note that this

process may take a few minutes to complete. Do not be concerned if the screen is paused for a few minutes.

Question: What's on the CD that came with my motherboard?

Answer: The supplied compact disc has quite a few drivers and programs that will greatly enhance your system. We recommend that you review the CD and install the applications you need. Applications on the CD include chipset drivers for Windows and security and audio drivers.

Question: How do I utilize the onboard HD sound?

Answer: The onboard HD sound available on the C2SBM-Q can be enabled with the audio driver software that was included in your motherboard package. When activated, sound will be routed through the jacks next to the LAN Port according to the audio connection descriptions listed on Page 2-8. You must also set the HD Audio setting to "Auto" in the Advanced Chipset section of the BIOS setup.

Question: I installed my microphone correctly but I can't record any sound. What should I do?

Answer: Go to <Start>, <Programs>, <Accessories>, <Entertainment> and then <Volume Control>. Under the Properties tab, scroll down the list of devices in the menu and check the box beside "Microphone".

Question: After I have installed 4 pieces of 1GB Memory, why does the BIOS only detect about 3.145 GB of memory during POST?

Answer: Because the chipset does not support memory remapping, and PCI-E memory requires a great deal of memory, so there is a memory hole located around the 4GB memory address.

Question: How do I connect the ATA100/66 cable to my IDE device(s)?

Answer: The 80-wire/40-pin high-density ATA100/66 IDE cable that came with your system has two connectors to support two drives. This special cable must be used to take advantage of the speed the ATA100/66 technology offers. **Connect the blue connector to the onboard IDE header and the other connector(s) to your hard drive(s).** Consult the documentation that came with your disk drive for details on actual jumper locations and settings.

Question: Why doesn't my USB devices work after installing the Intel Chipset Software Installation Utility in Windows XP or Windows Server 2003?

Answer: This is a timing conflict between Windows File Protection and the Setup program. This is described in greater detail, and a hotfix is available at Microsoft's website at http://support.microsoft.com/kb/921411/en-us

3-4 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete. For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Notes

Chapter 4

BIOS

4-1 Introduction

This chapter describes the Phoenix BIOS™ Setup utility for the C2SBM-Q.The Phoenix ROM BIOS is stored in a flash chip and can be easily upgraded using a floppy disk-based program.

Note: *Due to periodic changes to the BIOS, some settings may have been added or deleted and might not yet be recorded in this manual. Please refer to the Manual Download area of the Super Micro web site <http://www.supermicro.com> for any changes to the BIOS not reflected in this manual.*

System BIOS

The BIOS is the Basic Input Output System used in all IBM® PC, XT™, AT®, and PS/2® compatible computers. The Phoenix BIOS stores the system parameters, types of disk drives, video displays, etc. in the CMOS. The CMOS memory requires very little electrical power. When the computer is turned off, a backup battery provides power to the CMOS logic, enabling it to retain system parameters. Each time the computer is powered on, the computer is configured with the values stored in the CMOS logic by the system BIOS, which gains control at boot-up.

How To Change the Configuration Data

The CMOS information that determines the system parameters may be changed by entering the BIOS Setup utility. This Setup utility can be accessed by pressing the <Delete> key at the appropriate time during system boot. (See below.)

Starting the Setup Utility

Normally, the only visible POST (Power On Self Test) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the BIOS Setup utility. From the main menu, you can access the other setup screens, such as the Security and Power menus. Beginning with Section 4-3, detailed descriptions are given for each parameter setting in the Setup utility.

Warning: Do not shut down or reset the system while updating the BIOS to prevent possible boot failure.

4-2 Running Setup

Default settings are in bold text unless otherwise noted.

The BIOS setup options described in this section are selected by choosing the appropriate text from the main BIOS Setup screen. All displayed text is described in this section, although the screen display is often all you need to understand how to set the options (see next page).

When you first power on the computer, the Phoenix BIOS™ is immediately activated.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing <Delete> immediately after turning the system on, or
2. When the message shown below appears briefly at the bottom of the screen during the POST (Power On Self-Test), press the <Delete> key to activate the main Setup menu.

Press the <Delete> key to enter Setup

4-3 Main BIOS Setup

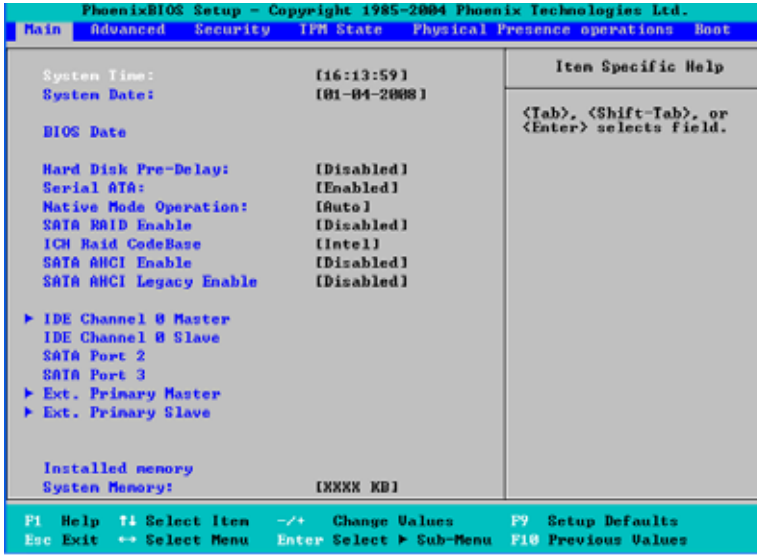
All main Setup options are described in this section. The main BIOS Setup screen is displayed below.

Use the Up/Down arrow keys to move among the different settings in each menu. Use the Left/Right arrow keys to change the options for each setting.

Press the <Esc> key to exit the CMOS Setup Menu. The next section describes in detail how to navigate through the menus.

Items that use submenus are indicated with the ▶icon. With the item highlighted, press the <Enter> key to access the submenu.

Main BIOS Setup Menu


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Main Advanced Security TPM State Physical Presence operations Boot
System Time: [16:13:59]
System Date: [01-04-2008]
BIOS Date
Hard Disk Pre-Delay: [Disabled]
Serial ATA: [Enabled]
Native Mode Operation: [Auto]
SATA RAID Enable [Disabled]
ICH Raid CodeBase [Intel]
SATA AHCI Enable [Disabled]
SATA AHCI Legacy Enable [Disabled]
IDE Channel 0 Master
IDE Channel 0 Slave
SATA Port 2
SATA Port 3
Ext. Primary Master
Ext. Primary Slave
Installed memory
System Memory: [XXXX KB]
Item Specific Help
<Tab>, <Shift-Tab>, or <Enter> selects field.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

Main Setup Features

System Time

To set the system date and time, key in the correct information in the appropriate fields. Then press the <Enter> key to save the data.

System Date

Using the arrow keys, highlight the month, day and year fields, and enter the correct data. Press the <Enter> key to save the data.

BIOS Date

The item displays the date that the BIOS was built.

Hard Disk Pre-Delay

When enabled, this featyre will add a delay to provide time needed for HDD self-initialization before the HDD is accessed by the BIOS for the first time. Some HDDs will hang if accessed by the BIOS without proper initialization. The options are Enabled and **Disabled**.

Serial ATA

This setting allows the user to enable or disable the function of the Serial ATA. The options are Disabled and **Enabled.**

Native Mode Operation

Select Serial ATA for SATA or select Auto (Native Mode) for ATA. The options are: Serial ATA and **Auto**.

Serial ATA (SATA) RAID Enable

Select Enable to enable Serial ATA RAID Functions. (*For the Windows OS environment, use the RAID driver if this feature is set to Enabled. When this item is set to Enabled, the item: ICH RAID Code Base will be available for you to select either Intel or Adaptec HOST RAID firmware to be activated. Is this item is set to **Disabled**, the item SATA AHCI Enable will be available.) The options are Enabled and **Disabled.**

ICH RAID Code Base

Select Intel to enable the Intel SATA RAID firmware. Select Adaptec to use the Adaptec HostRAID firmware. The options are **Intel** and Adaptec.

SATA AHCI Enable

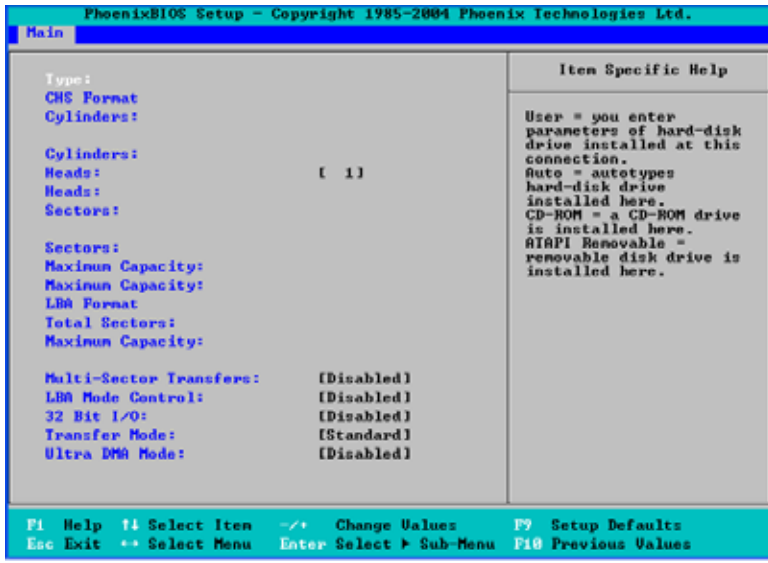
Select Enable to enable the function of Serial ATA Advanced Host Interface. (*Take caution whe using this function. This feature is for advanced programmers only. The Enhanced AHCI mode is available when the Windows XP-SP1 OS and the IAA driver is used.) The options are Enabled and **Disabled.**

SATA AHCI Legacy Enable

Select Enable to use Legacy Mode for SATA Advanced Host Interfacing. When the feature is set to Enabled, SATA Port 5 and SATA Port 6 are disabled. (*Take caution enable the function of Serial ATA Advanced Host Interface.(*Take caution whe using this function. This feature is for advanced programmers only.) The options are Enabled and **Disabled**.

▶IDE Channel 0 Master/Slave/SATA Port2/SATA Port3/Ext. Primary Master/Slave

These settings allow the user to set the parameters of slots indicated above. Hit <Enter> to activate the following sub-menu screen for detailed options of these items. Set the correct configurations accordingly. The items included in the sub-menu are the following:


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Main
Type:
CHS Format
Cylinders:
Cylinders:
Heads: [1]
Heads:
Sectors:
Sectors:
Maximum Capacity:
Maximum Capacity:
LBA Format
Total Sectors:
Maximum Capacity:
Multi-Sector Transfers: [Disabled]
LBA Mode Control: [Disabled]
32 Bit I/O: [Disabled]
Transfer Mode: [Standard]
Ultra DMA Mode: [Disabled]
Item Specific Help
User = you enter parameters of hard-disk drive installed at this connection.
Auto = autotypes hard-disk drive installed here.
CD-ROM = a CD-ROM drive is installed here.
ATAPI Removable = removable disk drive is installed here.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

Type

Use this feature to select the type of storage or ROM drive. Select **Auto** to allow the BIOS to automatically determine the drive's type/capacity (number of heads, etc.). Select User to manually enter the parameters for the storage device installed on this particular port. For hard drives, enter a number between 1 to 39 to select a pre-determined HDD type from the Drive Table. Select CDROM if a CDROM drive is installed. Select ATAPI if a removable disk drive is installed.

Note: Select User for any device or legacy device that is not supported or automatically detected under Auto. This enables you to manually enter parameters for devices that are not otherwise available in the BIOS' drive table.

CHS Format

The following items will be displayed by the BIOS:

TYPE: This item displays the type of IDE or SATA Device.

Cylinders: This item indicates the status of Cylinders.

Headers: This item indicates the number of headers.

Sectors: This item displays the number of sectors.

Maximum Capacity: This item displays the maximum storage capacity of the system.

The following items will be displayed by the BIOS:

LBA Format

Total Sectors: This item displays the number of total sectors available in the LBA Format.

Maximum Capacity: This item displays the maximum capacity in the LBA Format.

Multi-Sector Transfers

This item allows the user to specify the number of sectors per block to be used in the multi-sector transfer. The options are Disabled, 4 Sectors, 8 Sectors, and **16 Sectors**.

LBA Mode Control

This item determines whether the Phoenix BIOS will access the IDE Channel 0 Master Device via the LBA mode. The options are **Enabled** and Disabled.

32 Bit I/O

This option allows the user to enable or disable the function of a 32-bit data transfer. The options are Enabled and **Disabled**.

Transfer Mode

This option allows the user to set the transfer mode. The options are **Standard**, Fast PIO1, Fast PIO2, Fast PIO3, Fast PIO4, FPIO3/DMA1 and FPIO4/DMA2.

Ultra DMA Mode

This option allows the user to select Ultra DMA Mode. The options are Disabled, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4, and **Mode 5**.

System Memory

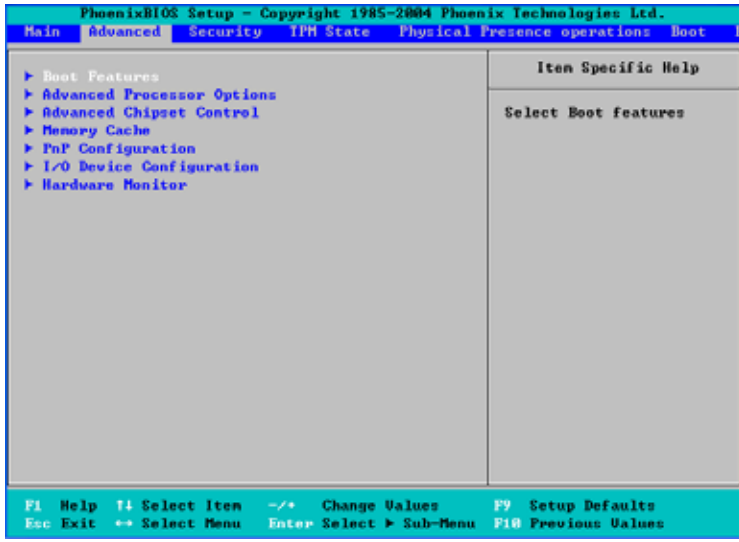
This display informs you how much system memory is recognized as being present in the system.

Extended Memory

This display informs you how much extended memory is recognized as being present in the system.

4-4 Advanced Setup

Choose Advanced from the Phoenix BIOS Setup Utility main menu with the arrow keys. You should see the following display. The items with a triangle beside them have sub- menus that can be accessed by highlighting the item and pressing <Enter>.



▶Boot Features

Quiet Mode

This setting allows you to **Enable** or Disable the graphic logo screen display during bootup.

QuickBoot Mode

If enabled, this feature will speed up the POST (Power On Self Test) routine by skipping certain tests after the computer is turned on. The settings are **Enabled** and Disabled. If Disabled, the POST routine will run at normal speed.

ACPI Mode

Use the setting to determine whether you want to use the ACPI (Advanced Configuration and Power Interface) power management on your system. The options are **Yes** and No.

ACPI Sleep Mode

Use the setting to determine if you want to use the ACPI (Advanced Configuration and Power Interface) power management on your system when the system enter into the sleep mode. The options are **S1,** S3 and S1S3.

High Precision Event Timer

Select Yes to activate the High Precision Event Timer (HPET), which is capable of producing periodic interrupts at a much higher frequency than a Real-time Clock (RTC) can in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in a CPU. The High Precision Event Timer is used to replace the 8254 Programmable Interval Timer. The default setting is **No**.

Power Button Behavior

If set to **Instant-Off**, the system will power on or power off immediately as soon as the user hits the power button. The options are **Instant-Off** and 4-second Override.

Resume On Modem Ring

Select On to "wake your system up" when an incoming call is received by your modem. The options are On and **Off**.

Resume On PME#

Select On to "wake your system up" from the PME#. The options are On and **Off**.

PS2 KB/MS Wake Up

Select Enable to "wake your system up" from the S1 and S3 state. The options are Enabled and **Disabled**.

USB Wake Up

Select Enable to "wake your system up" from the S1 and S3 state. The options are Enabled and **Disabled**.

Power Loss Control

This setting allows you to choose how the system will react when power returns after an unexpected loss of power. The options are Stay Off, Power On, and **Last State**.

Legacy USB Support

Select Enabled to enable the functionality of the Legacy USB Support. The options are Enabled and **Disabled**.

Watch Dog

Select Enabled to automatically reset the system if the system is not active for more than 5 minutes. The options are Enabled and **Disabled**.

Summary Screen

This setting allows you to **Enable** or Disable the summary screen which displays the system configuration during bootup.

▶Advanced Processor Options

Access the submenu to make changes to the following settings.

CPU Speed

This is a display that indicates the speed of the installed processor.

Frequency Ratio (Available when supported by the CPU.)

The feature allows the user to set the internal frequency multiplier for the CPU. The options are: **Default**, x6, x7, x8, x9, x10 and x11.

Frequency High Ratio (Available when supported by the CPU.)

The feature allows the user to set the high ratio internal frequency multiplier for the Intel SpeedStep CPUs. The default setting is X12.

***Note**: If a wrong ratio that is not supported by the CPU is selected, the system may hang. If this happens, clear the CMOS to recover the system.*

Hyperthreading (Available when supported by the CPU.)

Set to Enabled to use the Hyperthreading Technology, which will result in increased CPU performance. The options are Disabled and **Enabled.**

Core-Multi-Processing (Available when supported by the CPU.)

Set to Enabled to use a processor's Second Core and beyond (Please refer to Intel's web site for more information). The options are Disabled and **Enabled.**

Intel Enhanced Debug (Available when supported by the CPU.)

Set to Enabled to use a processor's Second Core and beyond (Please refer to Intel's web site for more information). The options are Disabled and **Enabled.**

Machine Checking (Available when supported by the CPU.)

Set to Enabled to activate the function of Machine Checking and allow the CPU to detect and report hardware (machine) errors via a set of model-specific registers (MSRs). The options are Disabled and **Enabled**.

Fast String Operations (Available when supported by the CPU.)

Set to **Enabled** to enable the fast string operations for special CPU instructions. The options are Disabled and **Enabled**.

Compatible FPU Code (Available when supported by the CPU.)

Set to Enabled to keep the content of the last instruction Operating Code (OPCode) in the floating point (FP) state. The options are **Disabled** and Enabled.

Split Lock Operation

Set to **Enabled** to mask alignment check exceptions for split-lock transactions. The options are Disabled and **Enabled**.

L3 Cache (Available when supported by the CPU.)

Set to Enabled to enable the function of L3 Cache to optimize the system and CPU performance. The options are Disabled and **Enabled**.

Thermal Management 2 (Available when supported by the CPU.)

Set to **Enabled** to use Thermal Management 2 (TM2,) which will lower the CPU voltage and frequency when the CPU temperature reaches a predefined overheat threshold. Set to Disabled to use Thermal Manager 1 (TM1), allowing CPU clocking to be regulated via the CPU Internal Clock modulation when the CPU temperature reaches the overheat threshold. The options are Disabled and **Enabled**.

Adjacent Cache Line Prefetch (Available when supported by the CPU.)

The CPU fetches the cache line for 64 bytes if this option is set to Disabled. The CPU fetches both cache lines for 128 bytes as comprised if Enabled. The options are Disabled and **Enabled**.

Set Maximum Ext. CPUID=3

When set to Enabled, the Maximum Extended CPUID will be set to 3. The options are **Disabled** and Enabled.

Echo TPR

Set to **Enabled** to prevent xTPR messages from being sent to the system. The options are Disabled and **Enabled**.

C1 Enhanced Mode (Available when supported by the CPU.)

Set to Enabled to enable the Enhanced Halt State to lower CPU voltage/frequency to prevent overheat. The options are Enabled and **Disabled**.

Note: *Please refer to Intel's web site for detailed information.*

Intel® Virtualization Technology (Available when supported by the CPU.)

Select Enabled to use the feature of Virtualization Technology to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple virtual systems in one computer. The options are Enabled and **Disabled**.

Note: *If there is any change to this setting, you will need to power off and restart the system for the change to take effect.) Please refer to Intel's web site for detailed information.*

No Execute Mode Memory Protection (Available when supported by the CPU and the OS.)

Set to Enabled to enable Execute Disable Bit and allow the processor to classify areas in memory where an application code can execute and where it cannot, and thus preventing a worm or a virus from inserting and creating a flood of codes to overwhelm the processor or damage the system during an attack.

Note: *This feature is available when your OS and your CPU support the function of Execute Disable Bit.) The options are Disabled and* ***Enabled****. (Note: For more information regarding the hardware/software support for this function, please* refer to Intel's and Microsoft's web sites.

Intel Speed Step Support (Available when supported by the CPU.)

Select Enabled to use the Enhanced Intel SpeedStep Technology and allows the system to automatically adjust the processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. The options are Enabled (-C States, GV1/GV3 are enabled), **GV1/GV3 Only** (C States: Disabled), C-States Only (-G1/G3: Disabled), and Disabled (-C States, GV1/GV3 are disabled). Please refer to Intel's web site for detailed information.

▶Advanced Chipset Control

Access the submenu to make changes to the following settings.

Warning: Be cautious when changing the Advanced settings. An incorrect setting, a very high DRAM frequency or an incorrect DRAM timing may result in system instability. When this occurs, revert to the default setting.

▶Integrated Device Control Sub-menu

Memory Reclaiming

Select Enable to enable the functionality of Memory Remapping above 4GB. The settings are **Enabled** and Disabled.

Enable VT-d

Select Enable to enable the functionality of the Intel Virtualization Technology for Direct I/O support, which offers fully-protected I/O resource-sharing across the Intel platforms, providing the user with greater reliability, security and availability in networking and data-sharing. The settings are Enabled and **Disabled**.

Default Primary Video Adapter

This feature allows the user to select the video device used by the BIOS during POST. If set to **Auto**, PEG, PCI, IGD (Internal Graphics Device) devices will be selected. If set to IGD (Internal Graphics Device), IGD and PCI devices will be selected. If set to PEG, PEG and PCI devices will be selected. If set to PCI, PCI, PEG and IGD devices will be selected.

IGD-Device 2

This feature allows the user to enable or disable Internal Graphics Device#2 by entering a specified value.

IGD-Device 2, Function 1

This feature allows the user to enable or disable Function#1 of Internal Graphics Device#2 by entering a specified value.

DVMT 4.0 Mode

This feature allows the user to configure the DVMT 4.0 Graphics Memory to be used by the Internal Graphics Device. The options are Fixed, **DVMT** and Auto.

Pre-allocated Memory Size

This feature allows the user to set the total amount of Pre-allocated graphics memory to be used by the Internal Graphics Device. The options are **1 MB** and 8 MB.

IGD Memory Size

This feature allows the user to set the total amount of graphics memory to be used by the Internal Graphics Device. The settings are 128 MB, **256 MB** and MAXDVMT.

Fixed Graphics Memory

This feature allows the user to display the Fixed Graphics settings.

DVMT Graphics Memory

This feature allows the user to display the DVMT Graphics settings.

Azalia Audio

Select **Auto** to enable Azalia Audio. The settings are **Auto** and Disabled.

Route Port 80h Cycles to

This feature allows the user to decide which bus to send debug information to. The options are Disabled, **PCI** and LPC.

▶Memory Cache

Cache System BIOS Area

This setting allows you to designate a reserve area in the system memory to be used as a System BIOS buffer and allow BIOS to write (cache) data into this reserved memory area. Select **Write Protect** to enable this function, and this area will be reserved for BIOS ROM access only. Select Uncached to disable this function and make this area available for other devices.

Cache Video BIOS Area

This setting allows you to designate a reserve area in the system memory to be used as a Video BIOS buffer and allow BIOS to write (cache) data into this reserved memory area. Select **Write Protect** to enable the function and this area will be reserved for Video BIOS ROM access only. Select Uncached to disable this function and make this area available for other devices.

Cache Base 0-512K

If enabled, this feature will allow the data stored in the base memory area: block 0-512K to be cached (written) into a buffer, a storage area in the Static DROM (SDROM) or to be written into L1, L2 cache inside the CPU to speed up CPU operations. Select Uncached to disable this function. Select Write Through to allow data to be cached into the buffer and written into the system memory at the same time. Select Write Protect to prevent data from being written into the base memory area of Block 0-512K. Select Write Back to allow the CPU to write data back directly from the buffer without writing data to the System Memory for fast CPU data processing and operation. The options are Uncached, Write Through, Write Protect, and **Write Back**.

Cache Base 512K-640K

If enabled, this feature will allow the data stored in the memory area: 512K-640K to be cached (written) into a buffer, a storage area in the Static DROM (SDROM) or written into L1, L2, L3 cache inside the CPU to speed up CPU operations. Select Uncached to disable this function. Select Write Through to allow data to be cached into the buffer and written into the system memory at the same time. Select Write Protect to prevent data from being written into the base memory area of Block 512K-640K. Select Write Back to allow the CPU to write data back directly from the buffer without writing data to the System Memory for fast CPU data processing and operation. The options are Uncached, Write Through, Write Protect, and **Write Back**.

Cache Extended Memory

If enabled, this feature will allow the data stored in the extended memory area to be cached (written) into a buffer, a storage area in the Static DROM (SDROM) or written into L1, L2, L3 cache inside the CPU to speed up CPU operations. Select Uncached to disable this function. Select Write Through to allow data to be cached into the buffer and written into the system memory at the same time. Select Write Protect to prevent data from being written into the extended memory area above 1 MB. Select Write Back to allow the CPU to write data back directly from the buffer without writing data to the System Memory for fast CPU data processing and operation. The options are Uncached, Write Through, Write Protect, and **Write Back**.

▶PNP Configuration

Access the submenu to make changes to the following settings for PNP (Play & Plug) devices.

▶PCI 32 Device Slot#4 - PCI Device Slot#6

Access the submenu for each of the settings above to make changes to the following:

Option ROM Scan

When enabled, this setting will initialize the device expansion ROM. The options are **Enabled** and Disabled.

Enable Master

This setting allows you to enable the selected device as the PCI bus master. The options are **Enabled** and Disabled.

Latency Timer

This setting allows you to set the clock rate for Bus Master. A high-priority, high-throughout device may benefit from a greater clock rate. The options are **Default**, 0020h, 0040h, 0060h, 0080h, 00A0h, 00C0h, and 00E0h. For Unix, Novelle and other Operating Systems, please select the option: other. If a drive fails after the installation of a new software, you might want to change this setting and try again. A different OS requires a different Bus Master clock rate**.**

▶PCI-E x4 Slot 5

Access the submenu for each of the settings above to make changes to the following:

PCI Express Port#1

Select Enabled to always enable PCI-Ex1 Port#1. Select Disabled to disable PCI-Ex1 Port#1 and all other PCI-E ports. When set to Auto, PCI-Ex1 Port#1 will be enabled if a PCI add-on card is detected. The options are **Auto**, Enabled and Disabled.

Option ROM Scan

When enabled, this setting will initialize the device expansion ROM. The options are **Enabled** and Disabled.

Enable Master

This setting allows you to enable the selected device as the PCI bus master. The options are **Enabled** and Disabled.

Latency Timer

This setting allows you to set the clock rate for Bus Master. A high-priority, high-throughout device may benefit from a greater clock rate. The options are **Default**, 0020h, 0040h, 0060h, 0080h, 00A0h, 00C0h, and 00E0h. For Unix, Novelle and other Operating Systems, please select the option: other. If a drive fails after the installation of a new software, you might want to change this setting and try again. A different OS requires a different Bus Master clock rate**.**

▶PEG (PCI-Express Graphics) Port Sub-menu

Access the submenu for each of the settings above to make changes to the following:

PCI-Express Graphics (PEG) Port (This submenu is for debugging only.)

Select **Auto** to automatically enable the PCI-Express Graphics Port if a PCI add-on card is detected. Select Disabled to always disable the PEG Port. Select Enabled to always enable the PEG Port. (Debugging is enabled if a Debug card is detected.) The default setting is **Auto**.

When the PCI-Exp. Graphics Port is enabled, the following items will be displayed:

PEG Port Enabled=
PEG Port Number=
PEG Port Width=
PEG Port Slot Number=
PEG Port Power Limit=
PEG Port Slot Detect=

▶Onboard IDE/Onboard LAN

Option ROM Scan

When enabled, this setting will initialize the device expansion ROM. The options are **Enabled** and Disabled.

Enable Master

This setting allows you to enable the selected device as the PCI bus master. The options are **Enabled** and Disabled.

Latency Timer

This setting allows you to set the clock rate for Bus Master. A high-priority, high-throughout device may benefit from a greater clock rate. The options are **Default**, 0020h, 0040h, 0060h, 0080h, 00A0h, 00C0h, and 00E0h. For Unix, Novelle and other Operating Systems, please select the option: other. If a drive fails after the installation of a new software, you may want to change this setting and try again. A different OS requires a different Bus Master clock rate**.**

▶I/O Device Configuration

Access the submenu to make changes to the following settings.

KBC Clock Input

This setting allows you to select the clock frequency for the Keyboard Controller. The options are 6MHz, 8MHz, **12MHz,** and 16MHz.

Serial Port A

This setting allows you to decide how the system controls Serial Port A. The options are **Enabled** (user defined), Disabled, and Auto (BIOS- or OS-controlled).

Base I/O Address

This setting allows you to select the base I/O address for Serial Port A. The options are **3F8**, 2F8, 3E8, and 2E8.

Interrupt

This setting allows you to select the IRQ (interrupt request) for Serial Port A. The options are IRQ3 and **IRQ4**.

Serial Port B

This setting allows you to decide how the system controls Serial Port B. The options are **Enabled** (user defined), Disabled, Auto (BIOS controlled) and OS Controlled.

Mode

This setting allows you to set the type of device that will be connected to Serial Port B. The options are **Normal** and IR (for an infrared device).

Base I/O Address

This setting allows you to select the base I/O address for Serial Port B. The options are 3F8, **2F8**, 3E8 and 2E8.

Interrupt

This setting allows you to select the IRQ (interrupt request) for Serial Port B. The options are **IRQ3** and IRQ4.

Serial Port C

This setting allows you to decide how the system controls Serial Port C. The options are **Enabled** (user defined), Disabled, Auto (BIOS controlled) and OS Controlled.

Base I/O Address

This setting allows you to select the base I/O address for Serial Port C. The options are **220** and 238.

Interrupt

This setting allows you to select the IRQ (interrupt request) for Serial Port B. The options are **IRQ5** and IRQ10.

Serial Port D

This setting allows you to decide how the system controls Serial Port C. The options are **Enabled** (user defined), Disabled, Auto (BIOS controlled) and OS Controlled.

Base I/O Address

This setting allows you to select the base I/O address for Serial Port C. The options are 220 and **238.**

Interrupt

This setting allows you to select the IRQ (interrupt request) for Serial Port B. The options are IRQ5 and **IRQ10.**

▶Hardware Monitoring

CPU Overheat Alarm

This option allows the user to select the CPU Overheat Alarm setting which determines when the CPU OH alarm will be activated to provide warning of possible CPU overheat.

Warning: Any temperature that exceeds the CPU threshold temperature predefined by the CPU manufacturer may result in CPU overheat or system instability. When the CPU temperature reaches this predefined threshold, the CPU and system cooling fans will run at full speed.

The options are:

The **Default Alarm Setting**: Select this setting if you want the CPU overheat alarm (including the LED and the buzzer) to be triggered when the CPU temperature reaches about 5ºC above the threshold temperature as predefined by the CPU

manufacturer to give the CPU and system fans additional time needed for CPU and system cooling.

The Early Alarm Setting: Select this setting if you want the CPU overheat alarm (including the LED and the buzzer) to be triggered as soon as the CPU temperature reaches the CPU overheat threshold as predefined by the CPU manufacturer.

CPU Temperature

The CPU Temperature feature will display the CPU temperature status as detected by the BIOS:

Low – This level is considered as the 'normal' operating state. The CPU temperature is well below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS (Fan Speed Control).

User intervention: No action required.

Medium – The processor is running warmer. This is a 'precautionary' level and generally means that there may be factors contributing to this condition, but the CPU is still within its normal operating state and below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS. The fans may adjust to a faster speed depending on the Fan Speed Control settings.

User intervention: No action is required. However, consider checking the CPU fans and the chassis ventilation for blockage.

High – The processor is running hot. This is a 'caution' level since the CPU's 'Temperature Tolerance' has been reached (or has been exceeded) and may activate an overheat alarm:

The Default Alarm – the Overheat LED and system buzzer will activate if the High condition continues for some time after it is reached. The CPU fan will run at full speed to bring the CPU temperature down. If the CPU temperature still increases even with the CPU fan running at full speed, the system buzzer will activate and the Overheat LED will turn on.

The Early Alarm – the Overheat LED and system buzzer will be activated exactly when the High level is reached. The CPU fan will run at full speed to bring the CPU temperature down.

Note: In both the alarms above, please take immediate action as shown below. See CPU Overheat Alarm to modify the above alarm settings.

User intervention: If the system buzzer and Overheat LED has activated, take action immediately by checking the system fans, chassis ventilation and room temperature to correct any problems. Note: the system may shut down if it continues for a long period to prevent damage to the CPU.

Notes: The CPU thermal technology that reports absolute temperatures (Celsius/Fahrenheit) has been upgraded to a more advanced feature by Intel in its newer processors. The basic concept is that each CPU is embedded by a unique temperature information that the motherboard can read. This 'Temperature Threshold' or 'Temperature Tolerance' has been assigned at the factory and is the baseline by which the motherboard takes action during different CPU temperature conditions (i.e., by increasing CPU Fan speed, triggering the Overheat Alarm, etc). Since CPUs can have different 'Temperature Tolerances', the installed CPU can now send its 'Temperature Tolerance' to the motherboard resulting in better CPU thermal management.

Supermicro has leveraged this feature by assigning a temperature status to certain thermal conditions in the processor (Low, Medium and High). This makes it easier for the user to understand the CPU's temperature status, rather than by just simply seeing a temperature reading (i.e., 25^{o}C).

The information provided above is for your reference only. For more information on thermal management, please refer to Intel's Web site at www.Intel.com.

System Temperature

This feature displays the system's absolute temperature (i.e., 33^{o}C)

Fan1 - Fan 5

If the feature of Auto Fan Control is enabled, the BIOS will automatically display the status of the fan as specified.

Fan Speed Control Modes

This feature allows the user to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase, and vice

versa. If the option is set to “4-pin”, the fan speed will be controlled by Pulse Width Modulation (PWM). Select “Workstation” if your system is used as a Workstation. Select “Disable” to disable the fan speed control function to allow the onboard fans to constantly run at full speed (12V). The Options are: **1. Disable** and 2. Optimized for Workstations with 4-pin.

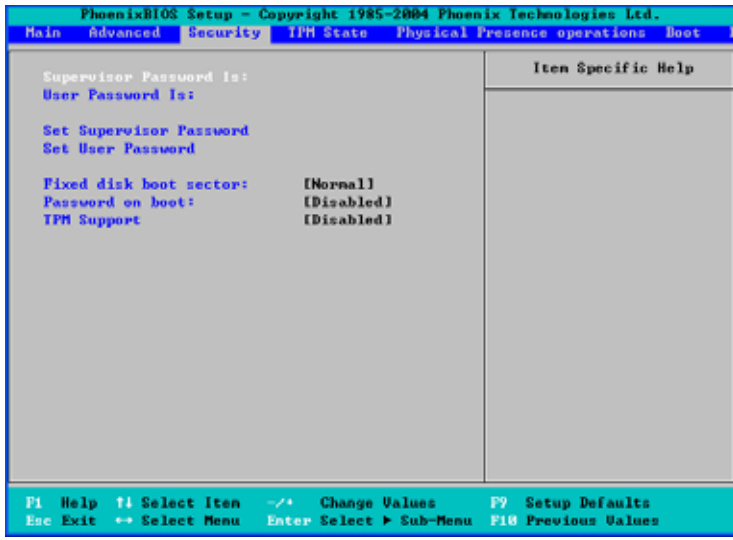
Note: *In the Windows OS environment, the Supero Doctor III settings take precedence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within Supero Doctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.*

Voltage Monitoring

The following items will be monitored and displayed:
Vcore A, 12V, V_DIMM, 5V, 3.3V, -12V, 3V Standby, Vbatt.

4-5 Security Settings

Choose Security from the Phoenix BIOS Setup Utility main menu with the arrow keys. You should see the following display. Security setting options are displayed by highlighting the setting using the arrow keys and pressing <Enter>. All Security BIOS settings are described in this section.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Main Advanced Security TPM State Physical Presence operations Boot
Supervisor Password Is:
User Password Is:
Set Supervisor Password
Set User Password
Fixed disk boot sector: [Normal]
Password on boot: [Disabled]
TPM Support [Disabled]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

Supervisor Password Is:

This item indicates if a supervisor password has been entered for the system. Clear means such a password has not been used and Set means a supervisor password has been entered for the system.

User Password Is:

This item indicates if a user password has been entered for the system. Clear means such a password has not been used and Set means a user password has been entered for the system.

Set Supervisor Password

When the item Set Supervisor Password is highlighted, hit the <Enter> key. When prompted, type the Supervisor's password in the dialogue box to set or to change supervisor's password, which allows access to the BIOS.

Set User Password

When the item Set User Password is highlighted, hit the <Enter> key. When prompted, type the user's password in the dialogue box to set or to change the user's password, which allows access to the system at boot-up.

Fixed Disk Boot Sector

Select **Normal** to enable the function of Write-Protect to protect the boot sector on the hard drives against viruses.

Password on Boot

When this feature is set to Enabled, a password is required for a user to enter the system at bootup. The options are Enabled (password required) and Disabled (password not required).

Trusted Platform Support

Select Enabled to enable support for trusted platforms and allow the BIOS to automatically download the drivers needed to provide support for the platforms specified. The options are Enabled and **Disabled**.

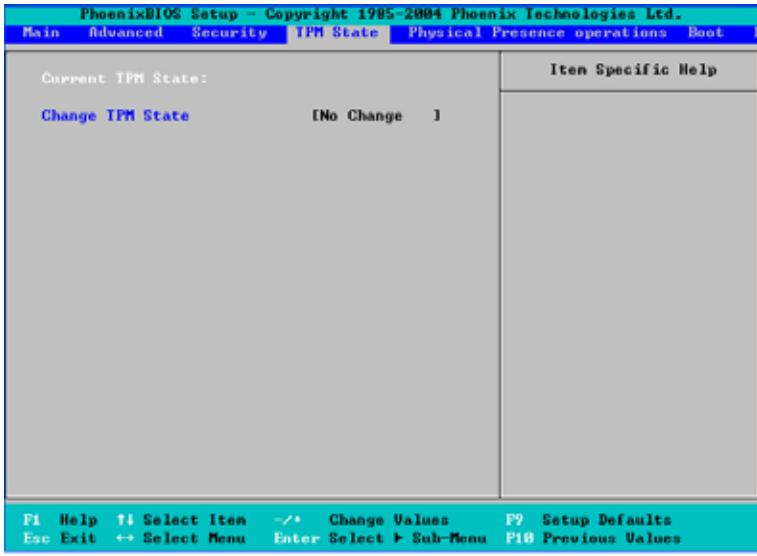
If set to Enabled, the TPM State screen displays. (See the next section.)

Note: Please make sure jumper JPT1 is enabled (default) on the motherboard.

4-6 Trusted Platform Module (TPM) State

(Available if the TPM Support Option is enabled in the Security Setting)

Choose the TPM State menu from the Phoenix BIOS Setup Utility with the arrow keys. You should see the following display.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Main Advanced Security TPM State Physical Presence operations Boot
Current TPM State:
Change TPM State [No Change]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

Current TPM State

This item shows the current TPM State only.

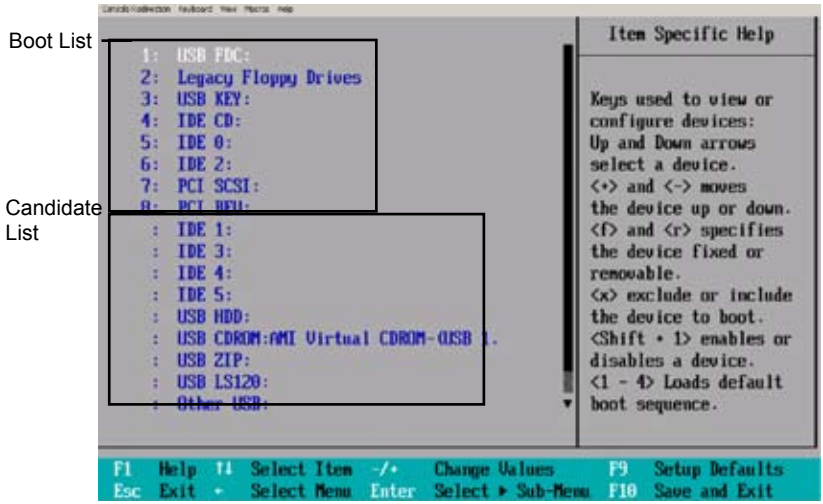
Change TPM State

Select "Enabled & Activate" to enable TPM support for the system. Select De-activate & Disabled to disable the function of TPM support. If "No Change" is selected, no changes will be done to the current TPM State. Select Clear to clear or erase all information related to TPM support.

If set to "Clear", the sub-menu: Physical Presence Operations will appear. Select Reject to cancel the selection. Select Execute to proceed with selection. All information related to TPM Support will be erased.

4-7 Boot Settings

Choose Boot from the Phoenix BIOS Setup Utility main menu with the arrow keys. You should see the following display. See details on how to change the order and specs of boot devices in the Item Specific Help window. All Boot BIOS settings are described in this section.

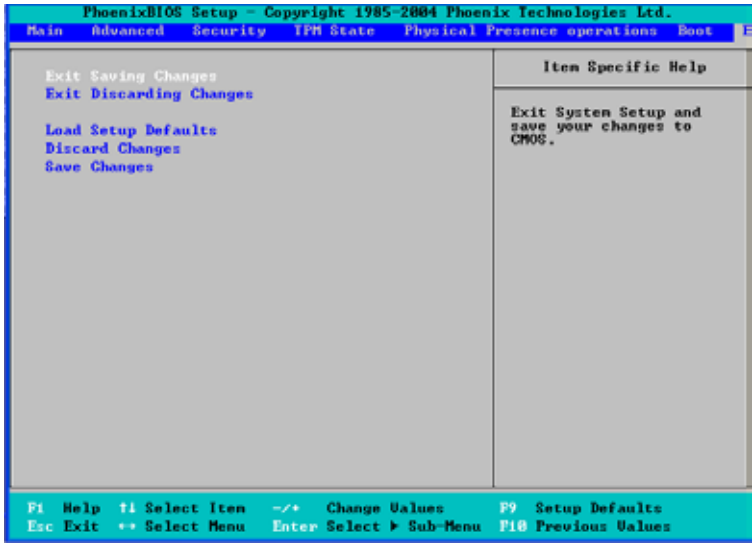

Boot List
Candidate List
1: USB FDC:
2: Legacy Floppy Drives
3: USB KEY:
4: IDE CD:
5: IDE 0:
6: IDE 2:
7: PCI SCSI:
: IDE 1:
: IDE 3:
: IDE 4:
: IDE 5:
: USB HDD:
: USB CDROM:AMI Virtual CDROM-USB 1.
: USB ZIP:
: USB LS120:
Item Specific Help
Keys used to view or configure devices:
Up and Down arrows select a device.
<+> and <-> moves the device up or down.
<f> and <r> specifies the device fixed or removable.
<x> exclude or include the device to boot.
<Shift + 1> enables or disables a device.
<1 - 4> Loads default boot sequence.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

Boot Priority Order/Excluded from Boot Orders

The devices included in the boot list section (above) are bootable devices listed in the sequence of boot order as specified. The boot functions for the devices included in the candidate list (above) are currently disabled. Use a <+> key or a <-> key to move the device up or down. Use the <f> key or the <r> key to specify the type of an USB device, either fixed or removable. You can select one item from the boot list and hit the <x> key to remove it from the list of bootable devices (to make its resource available for other bootable devices). Subsequently, you can select an item from the candidate list and hit the <x> key to remove it from the candidate list and put it in the boot list. This item will then become a bootable device. See details on how to change the priority of boot order of devices in the Item Specific Help window.

4-9 Exit

Choose Exit from the Phoenix BIOS Setup Utility main menu with the arrow keys. You should see the following display. All Exit BIOS settings are described in this section.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Main Advanced Security TPM State Physical Presence operations Boot
Exit Saving Changes
Exit Discarding Changes
Load Setup Defaults
Discard Changes
Save Changes
Item Specific Help
Exit System Setup and save your changes to CMOS.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

Exit Saving Changes

Highlight this item and hit <Enter> to save any changes you made and to exit the BIOS Setup utility.

Exit Discarding Changes

Highlight this item and hit <Enter> to exit the BIOS Setup utility without saving any changes you may have made.

Load Setup Defaults

Highlight this item and hit <Enter> to load the default settings for all items in the BIOS Setup. These are the safest settings to use.

Discard Changes

Highlight this item and hit <Enter> to discard (cancel) any changes you made. You will remain in the Setup utility.

Save Changes

Highlight this item and hit <Enter> to save any changes you made. You will remain in the Setup utility.

Notes

Appendix A

BIOS POST Messages

During the Power-On Self-Test (POST), the BIOS will check for problems. If a problem is found, the BIOS will activate an alarm or display a message. The following is a list of such BIOS messages.

Failure Fixed Disk
Fixed disk is not working or not configured properly. Check to see if fixed disk is attached properly. Run Setup. Find out if the fixed-disk type is correctly identified.

Stuck key
Stuck key on keyboard.

Keyboard error
Keyboard not working.

Keyboard Controller Failed
Keyboard controller failed test. May require replacing keyboard controller.

Keyboard locked - Unlock key switch
Unlock the system to proceed.

Monitor type does not match CMOS - Run SETUP
Monitor type not correctly identified in Setup

Shadow Ram Failed at offset: nnnn
Shadow RAM failed at offset **nnnn** of the 64k block at which the error was detected.

System RAM Failed at offset: nnnn
System RAM failed at offset **nnnn** of in the 64k block at which the error was detected.

Extended RAM Failed at offset: nnnn Extended memory not working or not configured properly at offset **nnnn.**

System battery is dead - Replace and run SETUP
The CMOS clock battery indicator shows the battery is dead. Replace the battery and run Setup to reconfigure the system.

System CMOS checksum bad - Default configuration used
System CMOS has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS. The BIOS installed Default Setup Values. If you do not want these values, enter Setup and enter your own values. If the error persists, check the system battery or contact your dealer.

System timer error
The timer test failed. Requires repair of system board.

Real time clock error
Real-Time Clock fails BIOS hardware test. May require board repair.

Check date and time settings
BIOS found date or time out of range and reset the Real-Time Clock. May require setting legal date (1991-2099).

Previous boot incomplete - Default configuration used
Previous POST did not complete successfully. POST loads default values and offers to run Setup. If the failure was caused by incorrect values and they are not corrected, the next boot will likely fail. On systems with control of **wait states**, improper Setup settings can also terminate POST and cause this error on the next boot. Run Setup and verify that the waitstate configuration is correct. This error is cleared the next time the system is booted.

Memory Size found by POST differed from CMOS
Memory size found by POST differed from CMOS.

Diskette drive A error
Diskette drive B error
Drive A: or B: is present but fails the BIOS POST diskette tests. Check to see that the drive is defined with the proper diskette type in Setup and that the diskette drive is attached correctly.

Incorrect Drive A type - run SETUP
Type of floppy drive A: not correctly identified in Setup.

Incorrect Drive B type - run SETUP
Type of floppy drive B: not correctly identified in Setup.

System cache error - Cache disabled
RAM cache failed and BIOS disabled the cache. On older boards, check the cache jumpers. You may have to replace the cache. See your dealer. A disabled cache slows system performance considerably.

CPU ID:
CPU socket number for Multi-Processor error.

EISA CMOS not writable
ServerBIOS2 test error: Cannot write to EISA CMOS.

DMA Test Failed
ServerBIOS2 test error: Cannot write to extended **DMA** (Direct Memory Access) registers.

Software NMI Failed
ServerBIOS2 test error: Cannot generate software NMI (Non-Maskable Interrupt).

Fail-Safe Timer NMI Failed
ServerBIOS2 test error: Fail-Safe Timer takes too long.

device Address Conflict
Address conflict for specified **device.**

Allocation Error for: device
Run ISA or EISA Configuration Utility to resolve resource conflict for the specified **device**.

CD ROM Drive
CD ROM Drive identified.

Entering SETUP ...
Starting Setup program

Failing Bits: nnnn
The hex number **nnnn** is a map of the bits at the RAM address which failed the memory test. Each 1 (one) in the map indicates a failed bit. See errors 230, 231, or 232 above for offset address of the failure in System,Extended, or Shadow memory.

Fixed Disk n

Fixed disk **n** (0-3) identified.

Invalid System Configuration Data

Problem with NVRAM (CMOS) data.

I/O device IRQ conflict

I/O device IRQ conflict error.

PS/2 Mouse Boot Summary Screen:

PS/2 Mouse installed.

nnnn kB Extended RAM Passed

Where **nnnn** is the amount of RAM in kilobytes successfully tested.

nnnn Cache SRAM Passed

Where **nnnn** is the amount of system cache in kilobytes successfully tested.

nnnn kB Shadow RAM Passed

Where **nnnn** is the amount of shadow RAM in kilobytes successfully tested.

nnnn kB System RAM Passed

Where **nnnn** is the amount of system RAM in kilobytes successfully tested.

One or more I2O Block Storage Devices were excluded from the Setup Boot Menu

There was not enough room in the IPL table to display all installed I2O block-storage devices.

Operating system not found

Operating system cannot be located on either drive A: or drive C:. Enter Setup and see if fixed disk and drive A: are properly identified.

Parity Check 1 nnnn

Parity error found in the system bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays **????.** Parity is a method for checking errors in binary data. A parity error indicates that some data has been corrupted.

Parity Check 2 nnnn

Parity error found in the I/O bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays **????.**

Press <F1> to resume, <F2> to Setup, <F3> for previous
Displayed after any recoverable error message. Press <F1> to start the boot process or <F2> to enter Setup and change the settings. Press <F3> to display the previous screen (usually an initialization error of an **Option ROM**, i.e., an add-on card). Write down and follow the information shown on the screen.

Press <F2> to enter Setup
Optional message displayed during POST. Can be turned off in Setup.

PS/2 Mouse:
PS/2 mouse identified.

Run the I2O Configuration Utility
One or more unclaimed block storage devices have the Configuration Request bit set in the LCT. Run an I2O Configuration Utility (e.g. the SAC utility).

System BIOS shadowed
System BIOS copied to shadow RAM.

UMB upper limit segment address: *nnnn*
Displays the address ***nnnn*** of the upper limit of **Upper Memory Blocks**, indicating released segments of the BIOS which can be reclaimed by a virtual memory manager.

Video BIOS shadowed
Video BIOS successfully copied to shadow RAM.

Notes

Appendix B

BIOS POST Codes

This section lists the POST (Power On Self Test) codes for the PhoenixBIOS. POST codes are divided into two categories: recoverable and terminal.

Recoverable POST Errors

When a recoverable type of error occurs during POST, the BIOS will display an POST code that describes the problem. BIOS may also issue one of the following beep codes:

1 long and two short beeps - video configuration error
1 repetitive long beep - no memory detected
1 long continuous beep (with OH LED on) - system overheat

Terminal POST Errors

If a terminal type of error occurs, BIOS will shut down the system. Before doing so, BIOS will write the error to port 80h, attempt to initialize video and write the

POST Code	Description
02h	Verify Real Mode
03h	Disable Non-Maskable Interrupt (NMI)
04h	Get CPU type
06h	Initialize system hardware
07h	Disable shadow and execute code from the ROM.
08h	Initialize chipset with initial POST values
09h	Set IN POST flag
0Ah	Initialize CPU registers
0Bh	Enable CPU cache
0Ch	Initialize caches to initial POST values
0Eh	Initialize I/O component
0Fh	Initialize the local bus IDE
10h	Initialize Power Management
11h	Load alternate registers with initial POST values
12h	Restore CPU control word during warm boot
13h	Reset PCI Bus Mastering devices
14h	Initialize keyboard controller
16h	1-2-2-3 BIOS ROM checksum
17h	Initialize cache before memory Auto size

POST Code	Description
18h	8254 timer initialization
1Ah	8237 DMA controller initialization
1Ch	Reset Programmable Interrupt Controller
20h	1-3-1-1 Test DRAM refresh
22h	1-3-1-3 Test 8742 Keyboard Controller
24h	Set ES segment register to 4 GB
28h	Auto size DRAM
29h	Initialize POST Memory Manager
2Ah	Clear 512 kB base RAM
2Ch	1-3-4-1 RAM failure on address line ***xxxx****
2Eh	1-3-4-3 RAM failure on data bits ***xxxx**** of low byte of memory bus
2Fh	Enable cache before system BIOS shadow
32h	Test CPU bus-clock frequency
33h	Initialize Phoenix Dispatch Manager
36h	Warm start shut down
38h	Shadow system BIOS ROM
3Ah	Auto size cache
3Ch	Advanced configuration of chipset registers
3Dh	Load alternate registers with CMOS values
41h	Initialize extended memory for RomPilot (optional)
42h	Initialize interrupt vectors
45h	POST device initialization
46h	2-1-2-3 Check ROM copyright notice
48h	Check video configuration against CMOS
49h	Initialize PCI bus and devices
4Ah	Initialize all video adapters in system
4Bh	QuietBoot start (optional)
4Ch	Shadow video BIOS ROM
4Eh	Display BIOS copyright notice
4Fh	Initialize MultiBoot
50h	Display CPU type and speed
51h	Initialize EISA board (optional)
52h	Test keyboard
54h	Set key click if enabled
55h	Enable USB devices
58h	2-2-3-1 Test for unexpected interrupts
59h	Initialize POST display service
5Ah	Display prompt “Press <ESC> to enter SETUP”
5Bh	Disable CPU cache

POST Code	Description
5Ch	Test RAM between 512 and 640 kB
60h	Test extended memory
62h	Test extended memory address lines
64h	Jump to UserPatch1
66h	Configure advanced cache registers
67h	Initialize Multi Processor APIC
68h	Enable external and CPU caches
69h	Setup System Management Mode (SMM) area
6Ah	Display external L2 cache size
6Bh	Load custom defaults (optional)
6Ch	Display shadow-area message
70h	Display error messages
72h	Check for configuration errors
76h	Check for keyboard errors
7Ch	Set up hardware interrupt vectors
7Dh	Initialize Intelligent System Monitoring (optional)
7Eh	Initialize coprocessor if present
80h	Disable onboard Super I/O ports and IRQs (optional)
81h	Late POST device initialization
82h	Detect and install external RS232 ports
83h	Configure non-MCD IDE controllers
84h	Detect and install external parallel ports
85h	Initialize PC-compatible PnP ISA devices
86h	Re-initialize onboard I/O ports.
87h	Configure Motherboard Configurable Devices (optional)
88h	Initialize BIOS Data Area
89h	Enable Non-Maskable Interrupts (NMIs)
8Ah	Initialize Extended BIOS Data Area
8Bh	Test and initialize PS/2 mouse
8Ch	Initialize floppy controller
8Fh	Determine number of ATA drives (optional)
90h	Initialize hard-disk controllers
91h	Initialize local-bus hard-disk controllers
92h	Jump to UserPatch2
93h	Build MPTABLE for multi-processor boards
95h	Install CD ROM for boot
96h	Clear huge ES segment register
97h	Fix up Multi Processor table
98h	1-2 Search for option ROMs and shadow if successful. One long, two short beeps on checksum failure

POST Code	Description
99h	Check for SMART Drive (optional)
9Ch	Set up Power Management
9Dh	Initialize security engine (optional)
9Eh	Enable hardware interrupts
9Fh	Determine number of ATA and SCSI drives
A0h	Set time of day
A2h	Check key lock
A4h	Initialize typematic rate
A8h	Erase <ESC> prompt
AAh	Scan for <ESC> key stroke
ACh	Enter SETUP
AEh	Clear Boot flag
B0h	Check for errors
B1h	Inform RomPilot about the end of POST (optional)
B2h	POST done - prepare to boot operating system
B4h	1 One short beep before boot
B5h	Terminate QuietBoot (optional)
B6h	Check password (optional)
B7h	Initialize ACPI BIOS and PPM Structures
B9h	Prepare Boot
BAh	Initialize SMBIOS
BCh	Clear parity checkers
BDh	Display MultiBoot menu
BEh	Clear screen (optional)
BFh	Check virus and backup reminders
C0h	Try to boot with INT 19
C1h	Initialize POST Error Manager (PEM)
C2h	Initialize error logging
C3h	Initialize error display function
C4h	Initialize system error flags
C6h	Console redirection init.
C7h	Unhook INT 10h if console redirection enabled
C8h	Force check (optional)
C9h	Extended ROM checksum (optional)
CDh	Reclaim console redirection vector

POST Code	Description
D2h	Unknown interrupt
D4h	Check Intel Branding string
D8h	Alert Standard Format initialization
DEh	Log error if micro-code not updated properly

The following are for boot block in Flash ROM

POST Code	Description
E0h	Initialize the chipset
E1h	Initialize the bridge
E2h	Initialize the CPU
E3h	Initialize system timer
E4h	Initialize system I/O
E5h	Check force recovery boot
E6h	Checksum BIOS ROM
E7h	Go to BIOS
E8h	Set Huge Segment
E9h	Initialize Multi Processor
EAh	Initialize OEM special code
EBh	Initialize PIC and DMA
ECh	Initialize Memory type
EDh	Initialize Memory size
EEh	Shadow Boot Block
EFh	System memory test
F0h	Initialize interrupt vectors
F1h	Initialize Run Time Clock
F2h	Initialize video
F3h	Initialize System Management Manager
F4h	Output one beep
F5h	Clear Huge Segment
F6h	Boot to Mini DOS
F7h	Boot to Full DOS

* If the BIOS detects errors on 2C, 2E, or 30 (base 512K RAM error), it displays an additional word-bitmap (***xxxx***) indicating the address line or bits that have failed. For example, “2C 0002” means address line 1 (bit one set) has failed. “2E 1020" means data bits 12 and 5 (bits 12 and 5 set) have failed in the lower 16 bits. The BIOS also sends the bitmap to the port-80 LED display. It first displays the checkpoint code, followed by a delay, the high-order byte, another delay, and then the low-order byte of the error. It repeats this sequence continuously.

Notes

Appendix C

Software Installation Instructions

A. Installing Drivers

After you've installed the Windows Operating System, a screen as shown below will appear. You are ready to install software programs and drivers that have not yet been installed. To install these software programs and drivers, click the icons to the right of these items.

Driver/Tool Installation Display Screen

Notes:

1. Click the icons showing a hand writing on the paper to view the readme files for each item. Click a computer icon to the right of an item to install an item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before proceeding with the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents of the CD.

B. Configuring Supero Doctor III

The Supero Doctor III program is a Web-base management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called the SD III Client. The Supero Doctor III program included on the CDROM that came with your motherboard allows you to monitor the environment and operations of your system. Supero Doctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the Supero Doctor III interface.

Note 1: Both default user name and password are ADMIN.

Note 2: In the Windows OS environment, the Supero Doctor III settings take precedence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within Supero Doctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.

Supero Doctor III Interface Display Screen-I (Health Information)

Supero Doctor III Interface Display Screen-II (Remote Control)

File Edit View Favorites Tools Help
Super Doctor III
Remote Management
SUPERMICRO
System Info. Health Info. Performance Remote Control Configuration Administration Systems Management Report Help
Remote Control
Graceful Power Control
Open Console
Power Control
Enter
Graceful power control
Supero Doctor III allows a user to inform the OS to reboot or shut down within a specified time (the default is 30 seconds). Before the system reboots or shuts down, it's allowed to cancel the action.
Requirements
Keep Supero SD3Service Daemon running at all times on this system.
Provide TCP/IP connectivity.
Power control

Note: SD III Software Revision 1.0 can be downloaded from our Web site at: ftp://ftp.supermicro.com/utility/Supero_Doctor_III/. You can also download SDIII User's Guide at: http://www.supermicro.com/PRODUCT/Manuals/SDIII/User-Guide.pdf. For Linux, we will still recommend that you use Supero Doctor II.

Notes

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